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Implementation of Crop Yield Forecasting System based on Climatic and Agricultural Parameters

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Abstract: India is an agricultural country, with over half of the population dependent on agriculture. This creates a huge source of income and is an important sector in the Indian economy as it supplies about 17% of the total Gross Domestic Product (GDP). So agriculture in India is said to be the backbone of our Indian economy. Agriculture is not only an occupation for the people but also a way of life. Agriculture is a risky business and the reliance on reliable crop harvests is important in decisions related to agricultural risk management. We often see farmers suffer losses because of improper selection of the crops they grow without taking into account climatic and environmental boundaries. Crop prediction is a tough task because it depends on a variety of factors such as region, season, rainfall, etc. So a system is needed to recommend reliable crops to a farmer by considering climatic conditions, region of cultivation, etc. The proposed work uses the random forest algorithm to solve agricultural problems by recommending the good crop and its average yield to a farmer by analyzing climatic and agricultural parameters like state, season and rainfall.

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M. Kandan

Computer Science and Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

Garapati Sravani Niharika

Computer Science and Engineering, Sasi Institute of Tech. & Engg, Tadepalligudem, Andhra Pradesh, India

Mallula Jhansi Lakshmi

Computer Science and Engineering, Sasi Institute of Tech. & Engg, Tadepalligudem, Andhra Pradesh, India

Kallakuri Manikanta

Computer Science and Engineering, Sasi Institute of Tech. & Engg, Tadepalligudem, Andhra Pradesh, India

Korlepara Bhavith

Computer Science and Engineering, Sasi Institute of Tech. & Engg, Tadepalligudem, Andhra Pradesh, India

☰ Contents

I. Introduction

In recent years there has been a drop in agricultural production mainly due to climatic changes and soil health. Given that 62% of the land area is still dependent on rainfall, Indian agriculture

continues to depend on climate. These climate changes will have an impact on the agriculture economy, including changes in farm profits, prices, supply, demand and trade. Making the right grain selection leads to better production and reduces farm management and pest control.

Authors

M. Kandan

Computer Science and Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

Garapati Sravani Niharika

Computer Science and Engineering, Sasi Institute of Tech. & Engg, Tadepalligudem, Andhra Pradesh, India

Mallula Jhansi Lakshmi

Computer Science and Engineering, Sasi Institute of Tech. & Engg, Tadepalligudem, Andhra Pradesh, India

Kallakuri Manikanta


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Abstract: The electoral system is the backbone of democracy and organization. The electoral system has experienced many efficient changes within the past few decades. India being a majority rule government, the world's biggest, still directs its races utilizing either Secret Ballet Voting (SBV) or Electronic Voting Machines (EVM), the two of which include significant expenses, physical work and are wasteful. In the existing system, it verified only identification proof, which made more chances for fake voting. To avoid the above issues, we developed a web-based smart voting system along with novel face detection and recognition approach. The entire online framework empowers individuals to protect their votes from any place on the planet. Utilizing the ID of appearances lessens the shot at copying a vote and the individuals who are enlisted advance to the political race and are perceived by the framework will be permitted to cast a ballot. Accordingly, the methodology makes the framework the most ideal approach to make the choice.

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M. Kandan

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Andhra Pradesh, India

Koppula Durga Devi

Computer Science and Engineering, Sasi Institute of Tech. & Engg,
Tadepalligudem, Andhra Pradesh, India

Kasani Durga Navya Sri

Computer Science and Engineering, Sasi Institute of Tech. & Engg,
Tadepalligudem, Andhra Pradesh, India

Nunna Ramya

Computer Science and Engineering, Sasi Institute of Tech. & Engg,
Tadepalligudem, Andhra Pradesh, India

Nunna Krishna Vamsi

Computer Science and Engineering, Sasi Institute of Tech. & Engg,
Tadepalligudem, Andhra Pradesh, India

☰ Contents

I. Introduction

Elections are that the primary worry of any nation when to choose somebody. Likewise, direct a solid, secure, quick, and reasonable political race so individuals can include confidence inside the framework and that they can choose the individual for whom they need close by the minimal expense of desk work and labor. Elections are the establishment of any vote-based system and the genuine soul of popular government lies in individuals picking their administration. Nowadays in India, two types of voting methods are used like secret ballot paper and EVM [1].

Authors

M. Kandan

Computer Science and Engineering, Aditya Engineering College,
Surampalem, Andhra Pradesh, India

Koppula Durga Devi

Computer Science and Engineering, Sasi Institute of Tech. & Engg,
Tadepalligudem, Andhra Pradesh, India

Kasani Durga Navya Sri

Computer Science and Engineering, Sasi Institute of Tech. & Engg,
Tadepalligudem, Andhra Pradesh, India

Nunna Ramya


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Abstract: Agriculture is the major contributor of national revenue for many developing countries. The embryonic of Internet of things (IoT) and wireless smart sensor network (WSSN) for precision agriculture provides automated systems and quick services to farmers. Farmlands should be observed unceasingly to safeguard from crop-raiders, evaluate soil quality etc. for better reaping and productivity. The challenging issue of energy preservation of battery driven sensor nodes is tackled by employing clustering protocols. The main research issue is the best possible choice of cluster head (CH) in order to deal out network energy consumption. This paper proposes a fuzzy logic (FL) based self-organized clustering scheme for farmland monitoring. The data transmission distances of CH are decreased by inculcating super cluster head (SCH). The load balancing between the cluster members is accomplished by nominating an originator node, which executes the cluster formation. The proposed scheme functions in two stages. In stage one, CHs of the network are selected based on three input FL system. In stage two, SCHs are chosen among the CHs using two input FL system, making the network into two levelled structures. The proposed scheme has superior performance over the similar comparable protocols in terms of energy savings and stable network life span.

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Anagha Rajput

Dept. of Electronics and Telecommunication, Pune Institute of Computer Technology, Pune, Maharashtra, India

Vinoth Babu Kumaravelu

School of Electronics Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu, India

Arthi Murugadass

Dept. of Computer Science and Engineering (AI & ML), Sreenivasa Institute of Technology and Management Studies, Chittoor, Andhra Pradesh, India

Vishnu Vardhan Gudla

Dept. of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

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I. Introduction

Precision agriculture is one of the IoT applications for resource utilization and management such as water and compost supply, soil qualities and so forth. The real time physical sensed data is collected by sensors, which are embedded on micro-processor circuits. They are called as smart sensor nodes. WSSNs can quickly aggregate the conditions at farm and transmit the information. This continuous gathered data from deployed sensors can be used by farmers, specialists or computerized embedded systems to settle on choices such as amount of soil treatment, water supply strategy, and so on. In this manner, WSSNs are especially well suited for precision agriculture [1], [2]. Here, agrarian fields can spread over several hectares. Thus, sensor nodes are spread over lengthy open space. In the evolving automated monitoring systems, the gateways/sinks have ubiquitous connectivity. Timely, the physical quantity can be calculated and stored in web cloud. Such information accession from any remote location will progress toward becoming as simple as transferring cell phone information on Internet. The integration of WSSN with IoT may upgrade the agrarian activities to enhance the productivity, crop safety and, in addition, quality of the grains. WSSNs are ad hoc networks developed for particular applications. Thus, the placement of WSSN differ from application to application. Fig. 1 depicts a sample scenario, where WSSN is used for farmland monitoring.



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G. S. Sahoo
Dept.of ECE, Aditya Engineering College, Andhra Pradesh, India

S. Routray
Dept.of ECE, SRM Institute of Science and Technology, Chennai, India

G. P. Mishra
Dept.of ECE, National Institute of Technology Raipur, Raipur, India

☰ Contents

I. Introduction

Earth abundant kesterite semiconductor materials are emerging among photovoltaic (PV) research communities due to its low-cost, environment friendly and non-toxic nature with suitable optical properties such as $(\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4)$ (CZTSSe) [1]–[3]. It has the potential to replace silicon and thin film-based PV technology. However, it is showing much lower efficiency than other thin film $\text{Cu}(\text{In}, \text{Ga})\text{Se}_2$ (CIGS) and CdTe solar cells [4]–[6]. One of the main reasons for low efficiency is different defect clusters. Deep intrinsic defects like SnZn antisites clusters act as deep recombination centers, leading to low carrier collection and the short carrier lifetime [5], [7]–[8]. Additionally, the large population of defect densities like $[\text{2CuZn}+\text{SnZn}]$ introduce hidden potential fluctuation due to grain boundaries [9]. It appears due to several factors such as multiple grain boundaries, bulk defects, interface traps, trap charges present in absorber layer, etc. Consequently, it leads to higher recombination rate, lower carrier separation along the junction. So, non-radiative electron-hole pair recombination is one of the most important drawback for kesterite solar cell. It results in a severe potential fluctuation, low minority carrier lifetime, which ultimately degrades its performance lowering open-circuit voltage (V_{oc}) [10]–[11]. It is well understood from the literature that intrinsic point defects and associated band tailing are the key points behind the V_{oc} deficit [5], [12]–[16].

Authors ^

G. S. Sahoo
Dept.of ECE, Aditya Engineering College, Andhra Pradesh, India

S. Routray
Dept.of ECE, SRM Institute of Science and Technology, Chennai, India

G. P. Mishra
Dept.of ECE, National Institute of Technology Raipur, Raipur, India

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IV. EXPERIMENTATION

A country's inventive growth is dependent on the agricultural sector. Agriculture, the foundation of all nations, offers food and raw resources. Agriculture is hugely important to humans as a food source. As a result, plant diseases detection has become a major concern. Traditional methods for identifying plant disease are available. However, agriculture professionals or plant pathologists

V. Conclusion

have traditionally employed empty eye inspection to detect leaf disease. This approach of detecting plant leaf disease traditionally can be subjective, time-consuming, as well as expensive, and requires a lot of people and a lot of information about plant diseases. It is also possible to detect plant leaf diseases using an experimentally evaluated software solution. Currently, machine learning and deep learning are using in recent years. The agriculture sector is also not a exception for machine learning. In this paper, we applied "Convnets" for plant disease detection and classification. We collected a PlantViallge dataset from Kaggle. It contains images of 15 different classes of plant leaves of three different plants potato, pepper, tomato. We divided the dataset into three datasets and applied Convnets on three datasets. We achieved an accuracy of 98.3%,98.5%,95% for potato plant disease detection, pepper plant disease detection, tomato plant disease detection. Experimental results have shown that our model achieved a good accuracy rate for plant leaf disease detection and classification.

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India

A. Lakshmanarao
Department of Information Technology, Aditya Engineering College,
Surampalem, India

M. Raja Babu
Department of Information Technology, Aditya Engineering College,
Surampalem, India

T. Srinivasa Ravi Kiran
Department of Computer Science, P.B. Siddhartha College of Arts & Science,
Vijayawada, A.P, India

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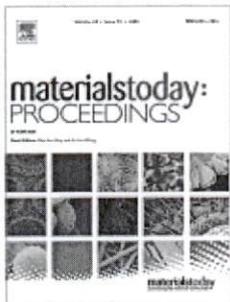
I. Introduction

India is a country where agriculture plays major role in the enhancement of human civilization. Crops were exclusively utilized to feed people and animals. Farming has become far more significant in recent years. People are researching production methods. Increase product activity, use fewer pesticides, and reduce environmental impact are important. The goal is to improve flat land for farming, enhance food production, and create lucrative systems. Possibilities for work are also provided. Agriculture is the primary source of income and provides the food sector with raw ingredients. The agricultural areas are confronted with challenges, including significant crop losses. Agricultural discretion will have an impact on the entire economy. Plant diseases have become a conundrum since they have raised concerns mostly about the production of agricultural outputs. There are numerous diseases in this climate. For these reasons, it is beneficial to identify these diseases effectively and on time to recognize the losses they create. Plantation, nurturing, and preventing plant diseases are key for a country's or region's overall governance. Plant diseases can be checked using a variety of approaches, including man-based and technology-based procedures. Some of the issues in plants can be seen with the naked eye. Some diseases are discovered later in the life cycle of the leaves and have already caused significant harm to the leaves and plants. Plant illnesses such as pathogens, live microorganisms, bacteria issues, fungi-infected plants, microbes, and virials cause problems in plants. It is important to identify the problem in the early stage. We considered three different plant types in this paper. The dataset was collected from Kaggle. It contains 3 types of potato leaves, 2 types of pepper leaves, and ten types of tomato leaves. The sample images in the dataset


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A review of the implementations of glass fiber in concrete technology

Ch. Devi ^a, D.S. Vijayan ^b, Ramesh Nagalingam ^c, S. Arvindan ^{b, d} ✉

^a Civil Engineering Department, Aditya Engineering College (A), Surampalem, Andhra Pradesh, India

^b Civil Engineering, Aarupadai Veedu Institute of Technology, Vinayaka Missions Research Foundation, Paiyanoor, Chennai 603104, India

^c Department of Architecture, SRM Institute of Science and Technology, Ramapuram, Chennai, Tamil Nadu 600089, India

^d Anand School of Architecture, Chennai 603103, India

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Abstract

Concrete Technology is the science and art of proportioning raw materials in order to produce concrete that satisfies specified mechanical, stiffness, and workability specifications. That is, evaluating the properties of concrete and its components under a variety of conditions and mixtures. Fiber Reinforced Concrete (FRC) is reinforced by the irregular, isolated, and evenly distributed fibres. FRC is available in a variety of forms and qualities, offers numerous benefits, and is a one-of-a-kind reinforcing material. Fibrous material strengthens the structure of FRC. It is composed of thousands of tiny discrete fibres that are randomly oriented and dispersed. Cement and alkali-resistant glass fibres are used to make glass fibre reinforced concrete (GFRC). The fibres are used to reinforce reinforced concrete in place of steel reinforcing bars, adding flexural, tensile, and impact strength. This enables the production of structural concrete products such as wall panels that are both strong and lightweight. GFRC can also be used to create beautiful concrete products such as façade wall panels and concrete work surfaces. Due to its adaptability, durability, and light weight, the majority of concrete experts use GFRC. The article's primary objective is to educate the public about new, practical, and cost-effective technology. The article's primary objective is to inform readers about emerging low-cost technologies. Additionally, the paper discusses current GFRC applications.

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A review on rheological characteristics, serviceability and failure analysis of steel fiber impregnated concrete

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Analysis of inset feed microstrip patch antenna on flexible (PVA/CMC/AV) substrate

R. Vettumperumal ^a, N.R. Dhineshababu ^{b, c}

^a Department of Physics, Fodhdhoo School, Fodhdhoo, Noonu Atoll 04120, Republic of Maldives

^b Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh 533 437, India

^c Jawaharlal Nehru Technological University, Kakinada 533 003, Andhra Pradesh, India

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Abstract

The development of current wearable mobile devices necessitates the use of antennas that are reduced in size and internally flexible to fit. The miniaturization of the microstrip patch antenna (MPA) improves its communication capabilities in a variety of ways. The use of flexible material in MPA construction enhances its suitability for wireless body area networks (WBAN), which include devices for military, surveillance, and medical purposes. The small MPA is built in this work employing a polymeric (PVA/CMC/AV) flexible substrate with an inset feed technique to resonate at a frequency of 2 GHz. COMSOL Multiphysics software is used to simulate the designed antenna within the perfect matched layer. The antenna's performance parameters are examined, including return loss, gain, directivity, radiation efficiency, and voltage standing wave ratio (VSWR).

Keywords

Microstrip patch antenna; Flexible substrate; COMSOL Multiphysics

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Micropatterning on stainless steel surface using electrochemical micromachining

S. Kunar  , D.V. Janaki

Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

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Abstract

Advanced materials propose an outstanding combination of biocompatibility and weight-specific properties that create these materials as ideal components in biomedical and aeroengine applications. However, the important microengineering applications are hindered by the prerequisite to produce high quality ellipse micropattern on stainless steel foils. The advanced and cost-effective method i.e., maskless electrochemical micromachining (EMM) has been established to manufacture micropatterns on SS-304 foils. The dispersal of current flux influences the shape and uniformity of microtextures and spreading of current density depends upon the mask thickness and strength in this process. So, micro ellipse profiles can be generated by controlling mask thickness and process parametric combination. In this paper, the development of investigational setup and utility of appropriate mask are described to fabricate the regular microtextures. The outcome of input factors such as electrolyte concentration, voltage, and machining time on various microtextured characteristics are investigated. A study has been made to achieve the best process variables based on micrographs. From investigational

results attained in a sequence of experimentation, the appropriate SU-8 2150 mask is reused for making uniform micropatterns. Eventually, a group of micropatterns is produced effectively with the vital accuracy by maskless EMM.

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Keywords

Maskless EMM; Reused masked tool; Ellipse; Micropattern; Depth; Accuracy; R_a

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Thermal analysis of Laser welding of Grade 91 steel

M. Zubairuddin ^a ✉, R. Ravi kumar ^b, Baharin Ali ^c, P. Kumar ^d, A.K. Singh ^d

^a Aditya Engineering College, Surampalem, India

^b Indira Gandhi Centre for Atomic Research, Kalpakkam, India

^c Institute of General Mechanics, RWTH Aachen University, Germany

^d Aditya College of Engineering and Technology, Surampalem, India

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Abstract

Grade 91 steel is a phase transformed based high temperature application steel. This paper investigates thermal analysis of Laser welding of 2 mm thin plates. A 3-D thermo-elastic-plastic model is developed for thermal analysis of Laser welding using SYSWELD and FlexPDE softwares. Initially heat source fitting of bead-on-plates was carried using conical heat source model then transient analysis of square butt joint was carried out. Bead-on-plate experiment was carried out to predict weld profile based on heat input parameters square butt joint welding of Grade 91 steel was completed.

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Keywords

Grade 91 steel; FlexPDE; SYSWELD; Thermal analysis; Laser welding

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Micropatterning using maskless electrochemical micromachining

S. Kunar^{a, d} ✉, R. Kumar^{a, d}, Bh. Varaprasad^{a, d}, S. Rama Sree^{b, d}, K.V.S.R. Murthy^{c, d}, M.S. Reddy^{a, d}

^a Department of Mechanical Engineering, Aditya Engineering College, Surampalem, India

^b Department. of Electrical and Electronics Engineering, Aditya Engineering College, Surampalem, India

^c Department of Computer Science & Engineering, Aditya Engineering College, Surampalem, India

^d Jawaharlal Nehru Technological University Kakinada, Kakinada, East Godavari, India

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Abstract

To attain economical micropatterning of microfeatures on the planar surfaces, a developed and maskless electrochemical micromachining procedure (MEMM) is applied wherein a layer of coating with unified micropores is made on the micropatterned tool. The textured tool and substrate are attached mechanically with sturdy structure in economically developed EMM cell. A distinctively electrolyte flow path by accommodating the textured tool with designed textures is manufactured in the cell unit to substantially mitigate mass removal restriction due to opening of the narrow-textured area in the tool. A single micropatterned tool creates multiple identical microtextures cost-effectively. Experimentation is carried out to appraise this anticipated MEMM procedure, with the effort on analysing the uniformity of dimensions of the machined micro impressions utilizing the influence of duty ratio and frequency. It is revealed that the advanced

MEMM method displays beneficial machinability and pertinency to create micro impressions with considerably identical profiles on the planar surfaces.

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Keywords

MEMM; Reused tool; Microtexture; Accuracy; Depth; Surface quality

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Influence of Nano-Fe₂O₃ concentration on thermal characteristics of the water based Nano-fluid

Vinjamuri SN Ch Dattu ^a ✉, Venkateswara Rao Roniki ^b, Puthalapattu Reddy Prasad ^c, Pothu Raju Tupati ^d, N. Gayatri Devi ^e, Rajyalakshmi Chavakula ^f

- ^a Department of Mechanical Engineering, Aditya Engineering College (A), Surampalem 533437, Andhra Pradesh, India
- ^b Department of Physics, Lendi Institute of Engineering and Technology, Vizianagaram 535005, Andhra Pradesh, India
- ^c Department of Chemistry, Institute of Aeronautical Engineering (IARE), Dundigal, Hyderabad 500043, Telangana, India
- ^d Freshmen Engineering Department, VKR VNB & AGK College of Engineering, Gudivada 521301, Andhra Pradesh, India
- ^e Department of Chemistry, Ch.S.D.St.Theresa's College for Women (A), Eluru, West Godavari 534003, Andhra Pradesh, India
- ^f Department of Basic Science, Vishnu Institute of Technology, Bhimavaram 534202, Andhra Pradesh, India

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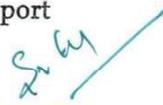
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Abstract

The heat transferring characteristics of the working fluids in thermal systems are the key factors which decide the performance of the thermal systems. The recent researches proposed the use of nano-sized particles in low fractions within the base fluids to enhance their heat transport

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behavior. Among the different thermo-physical characteristics of the nano-fluids, the thermal conductivity is considered to be the chief parameter if the enhancement in heat transfer is required. In this work, a water based nano-fluid containing nano-iron oxide (Fe₂O₃) in varying mass proportions (0.0%, 0.1%, 0.2%, 0.3%, and 0.4%) was investigated for its heat transfer capabilities. The thermal conductivity variation and the proportionate variations in the absolute viscosity of the nano-fluids were assessed in a wide range of temperature. The findings revealed that the thermal conductivity was improved with the increment in mass fraction of nano-iron oxide and also with the upsurge in temperature. Conversely, the absolute viscosity was increased with the loading of nano-iron oxide and the decreasing trend in absolute viscosity was reported with the rise in temperature.

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Keywords

Nano-fluids; Nano-iron oxide; Viscosity; Thermal conductivity; Heat transfer

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Materials Today: Proceedings

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Experimentally investigating the influence of static mixers on the performance of a solar water heater

A. Afroos Banu ^a, S. Mani Naidu ^b, Vinjamuri S.N. Ch. Dattu ^c, G. Sridevi ^d, M. Kalyan Chakravarthi ^e, N.R. Rajagopalan ^f

^a Department of Chemistry, Khadir Mohideen College, Adirampattinam 614 701, Tamil Nadu, India

^b Department of Physics, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, Chennai 600 062, Tamil Nadu, India

^c Department of Mechanical Engineering, Aditya Engineering College (A), Surampalem 533 437, Andhra Pradesh, India

^d Department of Mechanical Engineering, Centurion University of Technology and Management, Odisha 761 211, India

^e School of Electronics Engineering, VIT-AP University, Amaravathi 522 237, Andhra Pradesh, India

^f Department of Chemistry, St. Joseph's College of Engineering, Chennai 600 119, Tamil Nadu, India

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Abstract

For the majority of household, municipal, and corporate heated water needs, solar water heater has become an inescapable renewable source. Due to its relative benefits over alternative methods, evacuation tube collectors (ET) oriented solar water heaters (ETSWH) have become increasingly popular in recent years for the mentioned uses. Specifically, the ET system is particularly affordable and effective for the inactive operations. As a result, ETSWHs are widely

used in both residential and business structures. Nonetheless, the deprived water flow at the low end of the ETs makes them idle for the majority of time and decreases the useful absorbers area, is a fundamental flaw with ET system in gravity driven type of ET operation. This work aims to address the above ET issues by producing volatility within the ET utilizing two distinct varieties of static mixers, namely combinational static mixers (CSM) and a spring type static mixers (SSM). The experimentations had been carried out in three different ways: ET without static mixers (Empty-ET), ET with combinational static mixers (CSM-ET), and ET with spring type static mixers (SSM-ET). The data was taken from all the cases and then analyzed. The inclusion of static mixers greatly increased the ET water temperature by inducing turbulence, according to the findings. They concurrently increased heat gain, resulting in an increase in mean water tank temperature. With the help of combinational static mixers and a spring type static mixers, the water in the tank's temperature was raised by 8.5 °C and 4.5 °C, correspondingly. Furthermore, as compared to spring type static mixers, the combinational static mixers appear to be superior in terms of enhancing heat transport inside the ETSWH.

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Keywords

ET collector; Gravity flow; Static mixer; SWH; Water temperature

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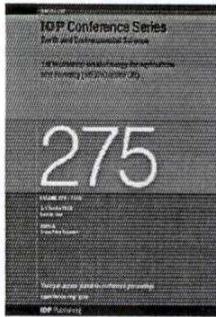
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Desalination of sea water using solar still

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lakshmiapanuganti@aec.edu.in

¹ Department of Civil Engineering, Aditya Engineering College, Surampalem-533464, East Godavari Dt., India

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Abstract

The consumption of fresh water is increasing at a rapid rate, but its availability is decreasing day by day. The present work is based on developing a low-cost prototype working model called solar still which desalinates brackish water through distillation. The fabrication of solar still installed at the terrace of BILL GATES Bhavan of Aditya Engineering College, involves the components, wooden box of volume - 0.048 m³, lined by Aluminium sheet 6 gauge coated with black paint, a parabolic reflector (44" x 34"), preheating tray (1 × 1 m), connecting pipes (1"), water collector (2 lit capacity) and glass cover. Sea water samples from Port area (sample-1) and Uppada (sample-2) of Kakinada Beach were collected for purification. The raw water is sent from the inlet valve into the looped pipe placed in the pre-heating tray and then the pre-heated water is discharged into the solar still where distillation takes place, and the desalinated water was collected at the collecting point. The laboratory analyses of

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Comparative Analysis of Drowsiness Detection Using Deep Learning Techniques

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Abstract:

Driver drowsiness increases crash risk, resulting in significant road damage each year. Driver drowsiness and rash driving are the leading causes of road accidents, which result in the loss of valuable lives and deteriorate road traffic safety. Various drowsiness detection systems have been developed using various technologies, with an emphasis on the unique parameter of detecting the driver's drowsiness. Deep learning techniques are currently a hot research topic in detection systems. The purpose of this paper is to compare the detection of driver drowsiness using deep learning techniques such as artificial neural networks (ANN), convolution neural networks (CNN), and deep convolutional neural networks (DCNN). This will determine whether the person is drowsy based on their eye score. If the eyes are closed until the bench score, the red alert will be activated, along with an alarm sound. This will determine

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whether or not the person is drowsy based on their eye score. If the eyes are closed until the bench score, the red alert will be activated, along with an alarm sound. The eyes will be detected whether they are open, semi-closed, or closed, and an alert will be generated to help prevent any type of road accident. To prevent accidents and improve road safety, reliable and precise driver drowsiness systems are required.

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Rajesh K. Babu
Department of ECE, KLEF Deemed to be University, Guntur, A.P, India

Indrani Abbireddy
Department of ECE, KLEF Deemed to be University, Guntur, A.P, India

Pavani Bellamkonda
Department of ECE, KLEF Deemed to be University, Guntur, A.P, India

Lavanya Nelakurthi
Department of ECE, KLEF Deemed to be University, Guntur, A.P, India

Jyothirmai Gandeti
Department of ECE, Aditya Engineering College, Surampalem, E.G, A.P, India

R. Koteswara Rao
Department of ECE, PACE Institute of Technology & Sciences, Ongole, A.P, India

☰ Contents

I. Introduction

Drowsiness detection is a technology that aids in the prevention of accidents caused by the person getting drowsy. Driver fatigue is a major factor nowadays in a large number of vehicle



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Abstract: Increases in the size of the network and associated data have been a direct effect of technological breakthroughs in the technology and communication areas. As a result, new types of assaults have emerged, making it more difficult for network security systems to identify potential threats. An intrusion Detection is a critical cyber security method that keeps track of the progress of the network's software or hardware. In order to keep up with the ever-increasing rate and diversity of cyber threats, researchers have turned to machine learning approaches to build intrusion detection systems (IDS). Using machine learning algorithms, it is possible to identify with high precision the major differences between normal and abnormal data. In this paper, we proposed three feature selection techniques followed by machine learning and deep learning for IDS. We collected two different datasets and used the ANOVA F-value based method, impurity-based feature selection, and mutual information-based techniques for identifying the best features. Later, we applied three ML algorithms K-NN, Decision Trees, Logistic Regression, and Deep Learning Feed Forward Neural Networks on two datasets and achieved an accuracy of

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88%, 99.9% with feed forward neural networks. The results shown that our model performed well compared to conventional methods.

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A. Lakshmanarao

Department of IT, Aditya Engineering College, India
Jawaharlal Nehru Technological University Kakinada, Kakinada

A. Srisaila

Department of Information Technology, V.R Siddhartha Engineering College, Vijayawada, A.P, India

T. Srinivasa Ravi Kiran

Department of Computer Science, P.B. Siddhartha College of Arts & Science, Vijayawada, A.P, India

☰ Contents

I. Introduction

The Internet has become an essential aspect of our lives as the digital world has grown. With the rise of smart cities, the Internet's role in daily life is becoming more and more important. There is also a chance of cyberattacks with this vast usage. In 1987, Denning [1] recommended the use of intrusion detection systems as an additional method of network security. Using these methods, networks can be kept safe from both internal and external threats. Cyber security is safeguarded by IDSs, which are detection systems that keep tabs on how well software and hardware are working on a network. False alarms are common in many IDS, which means that security analysts must deal with a lot of false alarms, which can lead to dangerous attacks going unnoticed. Intrusion occurs in a matter of seconds in today's world. There are two types of IDS available: anomaly based and signature based. Anomaly based IDS figures out what is usual for a given network, bandwidth, protocols, ports, and other devices are all monitored and compared to a pre-established baseline. Signature based IDS monitors all packets transiting the network and compares them to a collection of signatures of known harmful threats. This is similar to antivirus software. This

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Abstract: Spatial modulation techniques (SMTs) are a promising solution for the design of future fifth generation (5G) and beyond communication systems, which activate only one or few antennas at the transmitter as per the incoming bit pattern. SMTs offer promising spectral efficiency, energy efficiency, and error performance with reduced hardware cost and complexity. Recently, fully quadrature spatial modulation (FQSM) has garnered attention as spectral efficiency SMT, which can vary the active antennas from one to multiple/all at any time instance. As more antenna subsets are utilized for bit mapping, spectral efficiency of FQSM grows linearly with the quantity of antennas at the transmitter. All SMTs suffer from huge error performance degradation under correlated channel conditions and hence in this paper, we evaluate the performance of FQSM under various channel fading scenarios. For

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performance evaluation, uncorrelated and correlated Rayleigh, as well as Rician channel fading scenarios are considered. Extensive Monte Carlo simulation demonstrates the superiority of the FQSM under various channel fading scenarios.

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Vishnu Vardhan Gudla

Dept. of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

Sridevi Gamini

Dept. of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

Vinoth Babu Kumaravelu

Dept. of Communication Engineering, School of Electronics Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu, India

Francisco R. Castillo Soria

Telecommunications Department, Faculty of Science, Autonomous University of San Luis Potosi (UASLP), San Luis Potosi, Mexico

☰ Contents

I. Introduction

COVID-19 pandemic has significantly accelerated the dependency of people on digital services like digital payments, online health consultations, online delivery of classes, online retail, and video streaming. It is forecasted that smart phone subscriptions alone will exceed 1.2 billion in India alone [1]. To address these ever-growing demands and to support new

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extricated utilizing the gray level co-event network (GLCM), and afterward, significant measurable highlights were picked. At long last, a two-class classifier is carried out utilizing the support vector machine (SVM) and its presentation is then approved with k nearest neighbor (KNN). The presentation of the proposed stream work was assessed as far as exactness, affectability, particularity, and accuracy by performing on the BRATS 2017 benchmark dataset. The recreation results uncover that the proposed framework performs better compared to the current strategies with high exactness.

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Satti Harichandra Prasad

Dept. Of.E.C.E, Aditya Engineering college, surampalem, India

Jyothirmai Gandeti

Dept. Of.E.C.E, Aditya Engineering college, surampalem, India

B.S. Sridevi

Dept. Of.E.C.E, Aditya Engineering college, surampalem, India

M. Neeladri

Dept. Of.E.C.E, Aditya Engineering college, surampalem, India

G. Ajay Sankar

Dept. Of.E.C.E, Aditya Engineering college, surampalem, India

K. Pavani

Dept. Of.E.C.E, Aditya Engineering college, surampalem, India

☰ Contents

I. Introduction

The most aggressive brain tumors in adults are gliomas, which arise from glial cells and the surrounding infiltrative tissues [1] Low-grade gliomas (LGG) and high-grade gliomas (HGG) are the two types, with HGG being the most aggressive [2]. However, there are about 130 multiple forms of high-grade and low-grade brain tumors, with average survival uttermost between 12 to 15 months [3].

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V. Conclusion

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sentiment analysis. We achieved an accuracy of 93% for the classification of positive and negative airline reviews. We achieved accuracy values of 84.5%, 83.8% for neutral vs positive and neutral vs negative tweets. The results show that, the proposed RNN/LSTM/GRU model performed well for sentiment classification. **Keywords**—Sentiment analysis, Tweets, RNN, LSTM, GRU.

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A. Lakshmanarao
Department of Information Technology Aditya Engineering College,
Surampalem, India
Jawaharlal Nehru Technological University Kakinada, Kakinada, East Godavari
District

A. Srisaila
Department of Information Technology, V.R Siddhartha Engineering College,
Vijayawada, A.P, India

T. Srinivasa Ravi Kiran
Department of Computer Science, P.B. Siddhartha College of Arts & Science,
Vijayawada, A.P, India

☰ Contents

I. Introduction

Since its inception in 2006, social media platforms such as Twitter have seen an increase in the number of individuals expressing their opinions on items & services. Many firms utilize social media methods to attract new consumers [1]. It's much more crucial for organizations to have opinion mining automatically identify each consumer review. In social media research, it is a major challenge. To categorize the sentiment of tweets, Twitter's Sentiment Analysis was developed in 2009. For


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An Efficient Mouse Tracking System Using Facial Gestures

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A large number of human beings influenced with neuro-locomotor handicaps or those incapacitated by injury can't utilize computers/laptops for fundamental assignments like sending or getting messages, perusing the web, watching beloved Television shows or films. Through a past research study, it was presumed that eyes are a fantastic possibility for universal registering since they move in any case during cooperation with processing hardware. Utilizing this hidden data from eye developments could permit taking the utilization of computers back to these type patients. For this reason, we propose an mouse tracking framework which is totally worked by natural eyes as it were. The motivation behind this work is to develop an mouse tracking system that can viably follow eye-developments and empower the client to perform activities

V. Conclusion

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planned to explicit eye developments/signals through computer/laptop webcam.
The proposed model controls mouse movements through facial gestures.

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A. Lakshmanarao

Department of Information Technology, Aditya Engineering College,
Surampalem, India

B. Lokesh

Department of CSE, Raghu Engineering College, Visakhapatnam, India

Kilarapu Sarita

Department of Computer Science & Engineering, Aditya Engineering College,
Surampalem, India

☰ Contents

I. Introduction

There has recently been a surge in interest in achieving natural human-computer interaction. Several research in universal human-computer interaction was done earlier. In this era, the concepts of computers are added. There are many different types of gestures that can be used to communicate with another person. The interface based on vision The approach extracts motion data without incurring a substantial cost. However, in order to progress, a multimodal human-computer interface based on vision The tracking of eyes and faces, as well as their recognition, is part of the system. The main intention of this work is to design eye gesture tracking system, which may be helpful for physically disable people to to use computers. With realtime gesture system, a client can handle a PC by just doing motions before the web cam which is connected with the PC.

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Abstract: Plant diseases are a significant hazard to feed a growing population, but due to a lack of infrastructure in many regions of the world, timely detection is challenging. Finding and detecting plant illness is essential in agricultural production. It takes a great deal of time and effort to find the disease. Agricultural sector can also reap the benefits of machine learning and deep learning. There has been a recent rise in the use of ML & DL techniques in plant disease identification. In this paper, we applied transfer learning technique for plant disease prediction. We used a 'plantvillage' dataset collected from Kaggle. Images of fifteen different types of plant leaves (Tomato, Potato, Pepper bell), from three distinct plants are included in this collection. We split the original dataset into three parts for three different plants and applied three transfer learning techniques VGG16, RESNET50, Inception and achieved

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accuracy of 98.7%, 98.6%, 99% respectively. The results of experiments shown that our proposed model achieved good accuracy when compared to traditional models.

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A. Lakshmanarao

Department of Information Technology, Aditya Engineering College, Surampalem, India

N. Supriya

Department of CSE, Malla Reddy Engineering College(A), Hyderabad, Telangana, India

A. Arulmurugan

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☰ **Contents**

I. Introduction

The primary energy source for the human body is plants. A wide range of plant diseases can easily impact farming-based products. Farmers suffer ecological, social, and economic losses as a result of these diseases. The entire economy will be harmed if agricultural products decline. There are a variety of plant diseases on the earth. A decrease in the quality of agricultural products and a large decrease in returns could be caused by these illnesses, which could also jeopardize food safety.

Preventative measures begin with early discovery and diagnosis of plant diseases. Agricultural technicians are typically the ones that identify and diagnose plant diseases in the field. Farmers face ever-increasing hurdles every day as population grows. Farming relies heavily on the availability of land and water. To handle these issues in real time, modern agriculture employs a wide range of technological advances. This paper describes a method for detecting and classifying leaf diseases. We used a Kaggle plantvillage dataset for our experiments. Some of the plant leaf images from the dataset are shown in Fig-1, Fig-2.


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Abstract:

Brushed DC motors are being replaced by BLDC motors for low power applications BLDC motors unlike brushed DC motors host their phase windings on the stator and eternal electric on motor. Electronic commutation in BLDC motors is carried out using Hall sensors. Typical brushed AC motor techniques import thermalized toys, appliances, and computer peripherals. So improving the shape of voltage outcomes at the input supply is most important. PFC converters usually control the shape of current waveform by adjusting the duty ratio of its switches (MOSFET) such that it becomes zero at zero crossings and passes the current through input side inductor only at the peaks, making the load act as resistor. The PFC converter's control unit usually compares the DC link power and the reference velocity(multiplied by a voltage constant) and uses a controlled to improve the stability response, a comparative analysis of zeta

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Conference Location: Chennai, India

Marlapudi Asha Swarna Sri
Department of Electrical Engineering, Aditya Engineering College, AP

Bapayya Naidu Kommula
Department of Electrical Engineering, Aditya Engineering College, AP

☰ Contents

I. Introduction

In the recent past, most of the brushed DC motors are being replaced by the Brushless DC motors to avoid the losses, wear & tear of the conventional DC motors caused by the brushes and commutator. Permanent Magnet Brushless DC motors (PMBLDC) won't require any brushes and they provide similar Torque-speed characteristics as of conventional DC motors with the help of electronic commutation. They possess high power density due to high Torque to weight ratio. The major issue with the BLDC motors is the cost incurred with the electronic commutation, and the maintaining of power factor at the AC mains (supply). Many DC-DC converters have been developed over time to keep BLDC's AC mains power factor constant while also allowing the motor speed to be independently controlled [1].

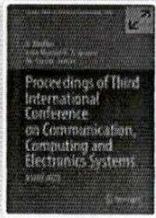
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Marlapudi Asha Swarna Sri
Department of Electrical Engineering, Aditya Engineering College, AP

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Department of Electrical Engineering, Aditya Engineering College, AP

Figures v

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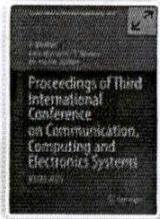
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Proceedings of Third International Conference on Communication, Computing and Electronics Systems pp 597–614

Hand Gesture Mapping Using MediaPipe Algorithm

[Ravi Kishore Veluri](#) , [S. Rama Sree](#), [A. Vanathi](#), [G. Aparna](#) & [S. Prasanth Vaidya](#)

Conference paper | [First Online: 20 March 2022](#)

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Part of the [Lecture Notes in Electrical Engineering](#) book series (LNEE, volume 844)

Abstract

Hand gestures are a type of nonverbal communication that may be deployed in a variety of situations, including communication between deaf and deaf-mute individuals, robot control, and human-computer interface home automation, and medical applications, among others. A wide range of approaches have been used in hand gesture-based research publications, as well as those based on designed to operate sensing technology and Internet


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international workshop on depth image analysis
and applications

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Author information

Authors and Affiliations

Aditya Engineering College, Surampalem, India

Ravi Kishore Veluri, S. Rama Sree, A. Vanathi, G.

Aparna & S. Prasanth Vaidya

Corresponding author

Correspondence to [Ravi Kishore Veluri](#).



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Third International Conference on Communication,
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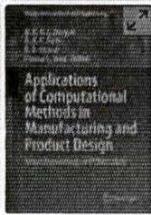
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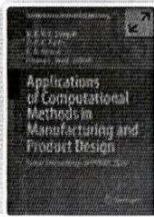
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Applications of Computational Methods in Manufacturing and Product Design pp 153–163

Experimental Investigation on the Performance of the Novel 3D-Printed Micro-Cross Axis Wind Turbine

V. S. Surya Prakash, P. S. V. V. Srihari, P. S. V. V. S. Narayana,
G. Udaysai, P. S. S. Rajesh & K. Venu

Conference paper | First Online: 04 May 2022

174 Accesses

Part of the Lecture Notes in Mechanical Engineering book series (LNME)

Abstract

Cross axis wind turbine which is a combination of both vertical and horizontal axis wind turbine is effective in extracting wind energy in urban regions. In this study, a novel CAWT with auxiliary blades arranged on its vertical components is proposed. The performance parameters such as co-efficient of torque, co-efficient of power, and co-efficient of moment of a 3D-printed scaled models are evaluated


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The author declares that they have no potential conflicts.

Author information

Authors and Affiliations

**Department of Mechanical Engineering, Aditya
College of Engineering & Technology,
Surampalem, Andhra Pradesh, India**

V. S. Surya Prakash, P. S. V. V. Srihari, G. Udaysai, P. S.
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Engineering College, Surampalem, India**

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Editor information

Editors and Affiliations

**Department of Industrial Design, National
Institute of Technology Rourkela, Rourkela,
Odisha, India**

Dr. B. B. V. L. Deepak

**Department of Mechanical Engineering, National
Institute of Technology Rourkela, Rourkela,
Odisha, India**

Prof. D.R.K. Parhi

**National Institute of Technology Rourkela,
Rourkela, Odisha, India**

Prof. B.B. Biswal

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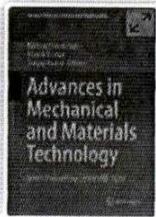
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**Advances in Mechanical and Materials Technology**_pp 1347–1362

A Numerical Approach to Find Distinct Mechanisms of a Planar Kinematic Chain Using Linkage Coordinates

Vinjamuri Venkata Kamesh, V. Srinivasa Rao, D. V. S. S. S. V. Prasad & P. S. Ranjit

Conference paper | First Online: 01 January 2022

841 Accesses

Part of the Lecture Notes in Mechanical Engineering book series (LNME)

Abstract

In a planar kinematic chain, different mechanisms are possible when on link's mobility is restricted by fixing it. These mechanisms obtained are called as inversions. In the present paper, a numerical approach is proposed which is based on new concept defined as 'linkage coordinates' related to connectivity of a link in a closed planar kinematic chain. The proposed method is tested on various


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Author information

Authors and Affiliations

Aditya Engineering College(A), Surampalem, East Godavari Dist., Andhra Pradesh, India

Vinjamuri Venkata Kamesh & P. S. Ranjit

Raghu Engineering College(A), Dakamarri, Visakhapatnam Dist., Andhra Pradesh, India

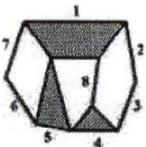
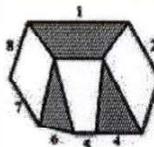
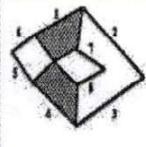
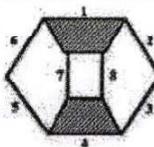
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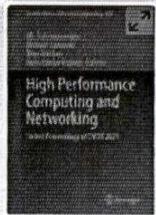
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High Performance Computing and Networking pp 181–191

A Slant Transform and Diagonal Laplacian Based Fusion Algorithm for Visual Sensor Network Applications

[Radha Nainvarapu](#) , [Ranga Babu Tummala](#) & [Mahesh Kumar Singh](#)

Conference paper | [First Online: 23 March 2022](#)

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Part of the [Lecture Notes in Electrical Engineering](#) book series (LNEE, volume 853)

Abstract

Multi-focus image fusion has developed as a promising research area in the field of visual sensor networks, and its objective is to combine multiple images of the same scene into a single image with enhanced reliability and interpretation. But, the current fusion methods based on focus measures are not able to get the entire focused fused image as they neglect the diagonal neighbor pixels during the


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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

Radha Nainvarapu

**Department of ECE, RVR & JC College of
Engineering, Chowdavaram, India**

Ranga Babu Tummala

**Accendere Knowledge Management Services,
New Delhi, India**

Mahesh Kumar Singh
Corresponding author

Correspondence to [Radha Nainvarapu](#).

Editor information

Editors and Affiliations

**Jawaharlal Nehru Technological University,
Kakinanda, Andhra Pradesh, India**

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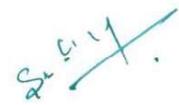
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Prof. Debasis Samanta

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Finland, Kuopio, Finland**

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High Performance Computing and Networking pp 193–204

Tracking Industrial Assets Using Blockchain Technology

N. B. L. V. Prasad , M. N. A. Pramodh, R. V. S. Lalitha,
Kayiram Kavitha & K. Saritha

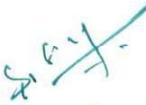
Conference paper | **First Online: 23 March 2022**

244 Accesses

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Abstract

There are several methods to track the movement of goods using different custom developed software applications. This paper presents the implementation of blockchain technology for tracking the movement of assets/equipment within the organization effectively and to share the asset/equipment without any formal authorizations. In this paper, software application is developed to implement transactions. Usage of blockchain technology for this application


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Author information

Authors and Affiliations

Technical Hub Pvt Ltd., Rajahmundry, A.P., India

N. B. L. V. Prasad

**Aditya College of Engineering and Technology,
Surampalem, India**

M. N. A. Pramodh & R. V. S. Lalitha

**Gokaraju Rangaraju Institute of Engineering and
Technology, Hyderabad, India**

Kayiram Kavitha

Aditya Engineering College, Surampalem, India

K. Saritha

Corresponding author

Correspondence to [N. B. L. V. Prasad](#).

Editor information

Editors and Affiliations

**Jawaharlal Nehru Technological University,
Kakinanda, Andhra Pradesh, India**

Prof. Ch. Satyanarayana

**Department of Computer Science and
Engineering, Indian Institute of Technology
Kharagpur, Kharagpur, West Bengal, India**

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S. Saritha
PRINCIPAL
Aditya Engineering College
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School of Computing, University of Eastern

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Engineering, Delhi Technological University, New

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Innovative Data Communication Technologies and Application pp 181–196

An Analysis on Classification Models to Predict Possibility for Type 2 Diabetes of a Patient

Ch. V. Raghavendran, G. Naga Satish, N. S. L. Kumar Kurumeti & Shaik Mahaboob Basha

Conference paper | First Online: 24 February 2022

375 Accesses | 1 Citations

Part of the Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT, volume 96)

Abstract

Machine learning (ML) is a theoretical method in which computers learn how to solve problems without being explicitly programmed. Classification algorithms in machine learning can extract useful information from datasets, text files, photographs, audio and video. Several factors affect the choice of a machine learning algorithm, including, but not limited to, data size, consistency and diversity, market


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Author information

Authors and Affiliations

**Aditya College of Engineering and Technology,
Surampalem, India**

Ch. V. Raghavendran

**BVRIT Hyderabad College of Engineering for
Women, Hyderabad, TS, India**

G. Naga Satish

Aditya Engineering College, Surampalem, India

N. S. L. Kumar Kurumeti

**Department of CSE, Saveetha School of
Engineering, Chennai, India**

Shaik Mahaboob Basha

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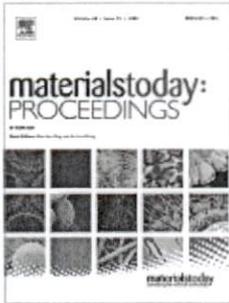
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High performance IIR filter design with MOD-GDI based array multiplier

Ramya Katnam, Bujjibabu Penumutchi

Dept. of ECE AEC, Surampalem, AP, India

Received 2 January 2021, Accepted 17 January 2021, Available online 19 February 2021.

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Abstract

Due to an upsurge in technology, there is a need for development resemblance in portable devices besides its high speed and low power capability. The most critical factors are area, total power dissipation, and propagation delay to estimate a device's performance. Signal processing modules viz. Finite Impulse Response (FIR) or Infinite Impulse Response (IIR) filters are fundamental elementary logics in DSP systems. Performance optimization of a digital IIR filter is always trendy for VLSI DESIGN Engineers. We can also achieve by improving sub-modules' efficiency (like. adder, multiplier, and delay elements) required to realize the filter architecture. This paper aims to extract a layout of the IIR filter implemented using a high-speed 4-bit Array Multiplier. The multiplier for this IIR designed with Modified Gate Diffusion Input (MOD-GDI) technique reduces the additional circuitry, which reduces the area and average power dissipation of overall filter logic. Extracted the layout by using Mentor Graphics EDA tools (with 130 nm technology). Compared to the performance characteristics like area, delay, the power consumption of the proposed and conventional IIR filters. The proposed IIR filter is space-efficient and consumes less power than the traditional IIR filters.

Keywords

GDI; Mod-GDI; Array multiplier; IIR filter

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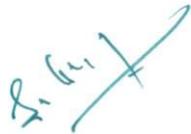
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A comparative study on machine learning based heart disease prediction

A. Kondababu, V. Siddhartha, BHK. Bhagath Kumar, Bujjibabu Penumutchi

Dept. of ECE AEC(A), Surampalem, AP, India

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Abstract

Over the last few decades, the population worldwide is suffering from heart disease, which is considered one of the most significant fatalities. About 17.7 million people die on average every year because of heart disease, the World Health Organization (WHO). There will be many difficulties in the prognosis of heart disease due to various risk factors like diabetes, high blood pressure, high cholesterol, abnormal pulse rate, and many other factors. The main goal is to save humans' lives by detecting abnormalities in heart conditions, which would be achieved by identifying and processing raw data collected based on heart information. The healthcare industry has found that Machine Learning (ML) is a useful and accurate decision-making technique in the data collection produced in large quantities. The medical decision support systems developed were effective based on the software and the different algorithms proposed by many researchers. Here a study is done based on the various techniques using the different algorithms and their performance analysis. The predicting model was introduced with several combined features, and among the multiple methods and were other classification techniques. Many existing ways discussed, among which the accuracy level was found as 88.7% using the Hybrid Random Forest with a Linear Model (HRFLM) technique.

Keywords

Machine learning; Heart disease; Random forest; Support vector machines; Decision trees

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Parametric analysis of schematic for efficient sub-system design with MOSFET's scaling factors

P. Bujjibabu ^a ✉, K. Babulu ^b, M. Kamaraju ^c

^a Dept. of ECE AEC, Surampalem, AP, India

^b Dept. of ECE, UCEK, JNTUK, AP, India

^c Dept. of ECE, GEC, Gudlavalleru, AP, India

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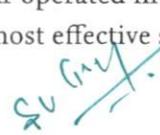
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Abstract

Integrated Circuits (IC) focus on low power devices, as per the demand in industries. In VLSI circuits, for modern applications, power dissipation is an essential constraint as it plays a crucial role in the system's overall performance estimation. Many techniques, like power gating or clock gating, can be used to reduce unnecessary power consumption. Non-working parts would be switched off during the non-functional period. IC designers are still facing the problem of choosing the best logic among different styles for the set of user-defined constraints. It is easy to select the optimal, with the prior availability of metrics, to make the design efficient. In this paper, the analysis was done on Mentor Graphics EDA Tool with 130nm technology to predict the characterization of given logic with multiple scaling factors and tested through distinct voltages by continuously changing MOSFET dimensions. The clocked CMOS is like CMOS in some conditions at the cost of power dissipation (196.49uW in CCMOS and 100.24nW in CMOS). Pseudo nMOS is suffering from delay variations (with 117.97pS to 503.74 pS) by changing MOS size and input voltage in their characteristics, unlike CMOS logic. It is to notice that the CMOS and clocked CMOS logics are ideal in maintaining constant delays in response to change in FET dimensions or supply voltages. Similarly, pseudo-NMOS logic, otherwise, is a delightful choice to use (with an average power maximum of 108.54 nW) when a constant power dissipation is mandatory from the system even, it's far operated in vibrant conditions. Identified efficient schematic which is either essential to arrive the most effective sub-system, which in turn increases the overall system performance.

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Determination of physico-chemical parameters of coal mines water samples and their correlation establishment with WQI using python programming

Satyajee Parida¹, Abhishek Kumar Tripathi¹, D.P. Tripathy² and Purabi Bora³

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parida.satyajee@aec.edu.in

abhishekkumar@aec.edu.in

debi_tripathy@yahoo.co.in

purabiboraduiet@gmail.com

¹ Department of Mining Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India-533437² Department of Mining Engineering, National Institute of Technology, Rourkela, Odisha, India-769008³ Petroleum Engineering Department, Chandigarh University, Chandigarh, India-140413<https://doi.org/10.1088/1742-6596/2070/1/012214>

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Abstract

The quality assessment of water is the need of the hour as water pollution has reached to an alarming level. The pollution of natural water bodies due to mine drainage system and mining activities is a major environmental concern worldwide. There are many potential reasons of water


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Abstract

Abstract: Two-port multi-input multi-output (MIMO) antenna for a 5G application is presented in this paper. The presented made of 2 monopole elements with an overall size of 11 x 4... [View more](#)

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- III. Results and Discussion
- IV. MIMO-Performance
- V. Conclusions

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Abstract:

Two-port multi-input multi-output (MIMO) antenna for a 5G application is presented in this paper. The presented made of 2 monopole elements with an overall size of 11 x 4.5 mm². To reduce the effect of one antenna element to another element, an optimized study has been considered. To reduce isolation between the ports of the designed MIMO, a stub has been put into the ground plane. The presented MIMO for 5G wireless application has been carried out using HFSS software. The S₁₁ value of deigned MIMO antenna obtained at 26 GHz resonance frequency and bandwidth of 4.3 GHz (from 24.0 GHz to 28.3 GHz) and isolation is below -27 dB. The MIMO performance of the presented MIMO antenna gives good results such as impedance bandwidth, radiation pattern, isolation, and gain. The presented MIMO antenna shows a high-quality applicant for 5G mm-wave application.

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M. D. Nandanay

U. G. Student of ECE department, Aditya Engineering College, Surampalem, A. P., India

S. B. G. Tilak Babu

Faculty of ECE department, Aditya Engineering College, Surampalem, A. P., India

Sanjeev Kumar

Accendere Knowledge Management Services Pvt. Ltd, New-Delhi, India
Adjunct Faculty at Aditya Engineering College Surampalem, A. P., India

Contents

I. Introduction

These days 5G technologies are being used in many realworld applications for example: use in Internet of Things (IoT), artificial intelligence (AI), and cloud computing applications. The development of 5G technology began in the last few years and has been implemented in 2019. Studies show that there would be rapid growth in existing technologies and the invention of new technologies. For better utilization, the change should be done by increasing bandwidth, reducing the clogging of the signals, and increasing the capacity of the channel. The present technology is not having all these flexible requirements. So the Engineers and the Researchers came forward to develop the technology and remodeled it and named it 5G technology. This 5G technology became one of the most trending technologies in the field of Antennas. Because of very few limited requirements the Scientists and Researchers are concentrating on the millimeter-wave spectrum. The frequency band of the millimeter-wave spectrum is about 29 GHz. This spectrum made the world concentrate more on it because of its efficiency [1]–[4]. This trending 5G technology is not only for implementing the basic requirements and also to implement the technologies that are coming up into existence. Especially this 5G technology is mainly used to implement the MIMO applications. This wireless MIMO will improve the transmission rate and also improves the communication quality to be constant. This MIMO technology consists of several antennas in the path of wireless communication. So this feature of MIMO increases the strength of the communication system. Nowadays, the best technology is based on the utilization of fewer components. But, this technology needs more number of antennas to have consisted in a specific place [5]–[6]. The MIMO should have high separation in the middle of the antennas which in turn requires the high gap between the antennas. The most important task for the researchers is to check the balance between miniaturization and high isolation. The design of the antenna should be aware of millimeter-wave which depends on 5G technology. Many countries are trying to acquire this technology. For other purposes and they are having separate bands in GHz. To obtain this technology, different types of studies have been taking place for antenna designing. The designing of an antenna with a low gain is not accepted, due to which the 5G waves are highly propagated and the losses in the atmosphere are less. So the information that passes through the signal becomes weak when traveling from transmitter to receiver. So to overcome this drawback one must read the depth of antenna arrays with high gain and beam-steering array capabilities. This should be done to improve the strength of the signal [7]–[8]. Furthermore, for

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Koneti Varalakshmi
Department of Electrical and Electronics Engineering, Aditya College of
Engineering and Technology, Surampalem, Andhra Pradesh

B V V L Kala Bharathi

Department of Electrical and Electronics Engineering, Aditya Engineering
College, Surampalem, Andhra Pradesh

Tata Himaja
Department of Electrical and Electronics Engineering, Aditya College of
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Contents

I. Introduction

Wind energy is one of the most widely used renewable energy sources which can operate either in standalone mode or grid connected mode. Many developed as well as developing nations use wind energy for electricity generation. Wind energy conversion system based on different types of wind turbine i.e. fixed speed and variable speed. Due to advancement in technology and power electronics converter and control principle, power generated from wind energy is more or less comparable to the conventional power plant.

Authors

Koneti Varalakshmi
Department of Electrical and Electronics Engineering, Aditya College of
Engineering and Technology, Surampalem, Andhra Pradesh

B V V L Kala Bharathi
Department of Electrical and Electronics Engineering, Aditya Engineering
College, Surampalem, Andhra Pradesh

Tata Himaja
Department of Electrical and Electronics Engineering, Aditya College of
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Penkey Amrutha

U. G. Student of ECE department, Aditya Engineering College, Surampalem, A. P., India

K. L. V. Prasad

Faculty of ECE department, Aditya Engineering College, Surampalem, A. P., India

Sanjeev Kumar

Accendere Knowledge Management Services Pvt. Ltd., New-Delhi, India
Adjunct Faculty, Aditya Engineering College, Surampalem, A. P., India

☰ Contents

I. Introduction

In the present era of high data rates, when we need to transmit and receive enormous volumes of high-definition films and heavy traffic, the demand for high data rates is always rising. It's not possible to satisfy the requirements for high absolute bandwidth at a frequency below 6 GHz due to the sub-6 GHz microwave frequency spectrum. So, to fulfill the high data rate need 5G technology. As 5G doesn't have much in the way of unused spectrum, 30–300 GHz is recommended as a frequency range that could offer large absolute bandwidth [1]–[2]. According to the current data, the amount of data traffic will be expanded at a speed of 50% each year per user, and it trend only continue in the coming days through the widespread usage of IoT and gadget-to-gadget communication. extend and facilitate There is no question that mm-Wave is a key element of the next generation (5G) communication and speed will achieve in term of Gbps. 5G cellular communication is planned for the use of mm-Wave concerning 5G, transmission models and propagation models research on mm-Wave communication is now being done in [3]–[5].

Authors ^

Penkey Amrutha

U. G. Student of ECE department, Aditya Engineering College, Surampalem, A. P., India

K. L. V. Prasad

Faculty of ECE department, Aditya Engineering College, Surampalem, A. P., India

Sanjeev Kumar

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Abstract: An ultra-wideband (UWB) compact size with high isolation two-port "multiple-input multiple-output (MIMO) antenna" is proposed. The presented MIMO geometry is made of two monopole antenna elements and a microstrip feed-line use. The elements are placed perpendicularly and due to this, isolation between antenna ports is attained without using any extra decoupling architecture. Thus, the minimum isolation between ports is 25 dB obtained in the entire operating frequency. The size of the presented antenna is 58 x 25 x 1 mm³ and the frequency band (S₁₁ < -10 dB) is covered from 3.4 GHz to 11.5 GHz (8.1 GHz) and fractional bandwidth is 108.72%. The result of the presented UWB textile MIMO antenna shows that option for C-band applications.

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Mangam Surya Jyothi

U. G. Student of ECE department, Aditya Engineering College, Surampalem, A. P., India

K. L. V. Prasad

Faculty of ECE department, Aditya Engineering College, Surampalem, A. P., India

Sanjeev Kumar

Accendere Knowledge Management Services Pvt. Ltd., New-Delhi, India
Adjunct Faculty, Aditya Engineering College, Surampalem, A. P., India

☰ Contents

I. Introduction

Wearable gadgets have been increasingly popular in recent years especially in the following fields: (i) Health monitoring (ii) Rescue operation (iii) physical training and (iv) emergency in disaster. The wearable-based antenna is a critical component for exchanging information between central data centre and on-body sensors. The textile substrate provides the facility to design an antenna for wearable applications, especially when considering the comfort and robustness considerations. There are challenges for designing an antenna based on the textile substrate on and off the body. The first and most obvious problem is dealing with the antenna deformation. When the antenna is worn on the body. It is necessary to take steps to guarantee that its performance does not deteriorate negatively. The coupling among antenna and human body is the second concern because it has an effect on the performance of the designed antenna and may have an impact on the health of those who use the antenna. One of the other issues is that textile antennas have a simpler topology than traditional printed circuit board (PCB) technology, which is a result of the larger manufacturing tolerances in contrast to established printed circuit board (PCB) technology [1]-[4].

Authors

Mangam Surya Jyothi
U. G. Student of ECE department, Aditya Engineering College,
Surampalem, A. P., India

K. L. V. Prasad
Faculty of ECE department, Aditya Engineering College, Surampalem, A. P.,
India

Sanjeev Kumar
Accendere Knowledge Management Services Pvt. Ltd., New-Delhi, India
Adjunct Faculty, Aditya Engineering College, Surampalem, A. P., India

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A Hybrid Machine Learning Strategy Assisted Diabetic Retinopathy Detection based on Retinal Images

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2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI)
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- I. Introduction
- II. Related Study
- III. Methodologies
- IV. Result and Discussion
- V. Conclusion and Future Scope

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Abstract:

Retinopathy is a serious disease occurred over the retinal area of the eye, in which it is mainly raised based on the Diabetic disease. This kind of retinal disease is named as diabetic retinopathy; it may cause the permanent disorder of an eye. This retinopathy disease affects the blood flow ratio of the retinal veins and cause the blindness to the people as well as it is caused by the irregular blood flow over the veins. This kind of diabetic retinopathy disease results from the damage to the retinal back portion, in which it is caused due to the propensity to the retina. An improper maintenance of Blood Sugar level leads to such risk cases and the diabetic retinopathy can easily be identified by some earlier symptoms such as appearance of floaters, decreased visual acuity, redness, yellow, and orange colors and poor color perception. These are all the common symptoms raised on earlier stages of diabetic retinopathy disease, in which it is recoverable but in case of poor consideration regarding such causes leads to permanent blindness. At the low end of the spectrum, the condition can be managed with careful control of one's diabetes. For more difficult cases, surgery or laser resurfacing may be required. In this paper, a digital image processing logic is utilized to process the retinal images and classify the normal and severe states in clear manner with respect to machine learning principles. This paper introduced a new machine learning strategy by means of combining two powerful machine learning algorithms such as Random Forest Classifier and the AdaBoost Classifier, in which it is integrated together to make a hybrid algorithm called Hybrid Retinal Disease Detection Logic (HRDDL). This proposed approach of HRDDL assures the logic of identifying the retinopathy diseases in clear manner with proper classification logics. The digital retinal image dataset downloaded from Kaggle database is utilized to prove the efficiency of the proposed approach and the resultin...

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R. Kiran Kumar
University College of Engineering, Krishna University, Machilipatnam, Krishna District, Andhra Pradesh, India

K. Arunabhaskar
Department of IT, Aditya Engineering College, East Godavari District, Andhra Pradesh, India

☰ Contents

I. Introduction

The major cause of vision loss in the entire globe is diabetic diseases with retinal disorders named Diabetic Retinopathy. In the beginning stage of diabetic retinopathy has certain symptoms to identify the disease, the symptoms like visibility of floaters, reduced visual acuity, eye redness, poor color perception on yellow and orange colors. These causes need to be immediately considered and provide proper treatment to prevent from

permanent vision loss. An irregular blood flow over the retinal vessels cause the drastic risk factors over vision progressiveness and it compress the nerves to make severity further [1]. These mentioned symptoms are not common for all patients but some of the related symptoms can easily be identified on periodical checkups and scans. Once the disease is identified over the earlier stages, it can easily be rectified otherwise it will cause severe injuries on eye and vision [2] [3]. In the retinal disease prediction, a clinical studies show that exposure to natural sunlight has also been effective in treating non seasonal and severe depression [4]. The diabetic retinopathy and nephropathy are often associated with vision loss in diabetes. Changes on the retina, including intra-retinal hemorrhages and intra-retinal anomalies, must be taken into consideration in order to grade DR [5].

Authors

R. Kiran Kumar
University College of Engineering, Krishna University, Machilipatnam, Krishna District, Andhra Pradesh, India

K. Arunabhaskar
Department of IT, Aditya Engineering College, East Godavari District, Andhra Pradesh, India

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Maximum Power Point Tracking for Photovoltaic Brushless DC Motor Connected Water Pumping System Based on GBDT-BOA Technique

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2018 European Control Conference (ECC)
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- III. GBDT-BOA Based Maximum Power Point Tracking
- IV. Result and Discussion
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Abstract:

An efficient tracking of maximum power point (MPP) in PV brushless DC (BLDC) motor fed water pumping system using hybrid approach is presented in this paper. The proposed method is a combined implementation of both the Gradient Boost decision tree (GBDT) and Billiards-inspired optimization algorithm (BOA) named as GBDT-BOA technique. The purpose of the proposed method is to monitor the maximal power of the PV brushless DC (BLDC) motor fed water pumping system. Among the various categories of DCDC converters, SEPIC converter is selected with the aim of maximum power taking out from PV as well as smooth starting of motor. GBDT plays to train the input data set, the trained value of the best parameters is optimized by the BOA in which it calculate the duty ratio of the single-ended primary inductor converter (SEPIC) to accomplish MPP. The duty cycle obtained through the proposed GBDT-BOA technique is applied to the SEPIC. SEPIC is connected to voltage source inverter (VSI) that is employed to power the BLDC motor. In the meantime, the proposed method is performed on MATLAB/ Simulink working platform and implementation is being explored with present methods like Perturb and Observation (P & O), Radial basis Function Neural Network (RBFNN). The performance of the system is assessed in terms of voltage, current, power of PV system and SEPIC voltage, current and the BLDC motor speed, torque, current, emf which shows the performance of the proposed system.

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Bapayya Naidu Kommula
Aditya Engineering College (A), Surampalem, India

Venkata Reddy Kota
JNTU Kakinada, Kakinada, India

Narsa Reddy Tummuru
IIT Mandi, Mandi, India

☰ Contents

I. Introduction

In the modern world, the use of renewable energy sources is growing rapidly due to being free, environmentally friendly; hence the conventional energy sources are declining day by day [1]. In the remote area, the standalone photovoltaic systems are developed for water pumping function [2]. It is used for agricultural and household applications due to the absence of grid [3]. To drive the pumping system, different types of electric motors are used [4]. ~~Sign over. Continue Reading~~ In place of electronic commutators, BLDC motor also possesses an added advantage of low maintenance and low noise production. [5]. Hence, for the PV pumping application DC motors are not frequently used. The low torque load is present which means that single-phase induction motors are used [6]. For the pumping application induction motors are not effective because of the complex control approach [7]. So, simple control design of BLDC motor was established [8]. Compared to AC motors it provides, low power range and which need maintenance-free operation [9].

Authors ^

Bapayya Naidu Kommula
Aditya Engineering College (A), Surampalem, India

Venkata Reddy Kota
JNTU Kakinada, Kakinada, India

Narsa Reddy Tummuru
IIT Mandi, Mandi, India

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Malicious URL Detection using NLP, Machine Learning and FLASK

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- I. Introduction
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- III. Proposed Methodology
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Abstract:

A URL created to attack with spam or fraud is known as a malicious/phishing URL. Viruses are downloaded into the system if the user clicks such URLs. Malicious URLs can lead to phishing and spam. With phishing, user credentials, valuable information is compromised. So, it is important to identify safe links and malicious links. Cyber-attacks are attempting with the origin of malicious URLs Phishers are manipulating their cyber attacking techniques rapidly. Machine Learning is a field of study where a system learns from previous experience and reacts to future events. Machine Learning methods are useful for resolving security applications. In this paper, authors proposed machine learning oriented solution for detecting malicious websites. For experiments, a Kaggle dataset with a large number of URLs (above 5, 00000 URLs) is used. We applied three techniques for text feature extraction count vectorizer, hashing vectorizer-IDF vectorizer, and later build a phishing website detection model with four ML classifiers Logistic Regression, K-NN, Decision Tree, Random Forest. The ML model with hash vectorizer and random forest achieved 97.5% accuracy. We also created a web app using Flask for detecting the entered URL is malicious or not.

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A. Lakshmanarao
Department of Information Technology, Aditya Engineering College,
Surampalem, A.P, India

M. Raja Babu
Department of Information Technology, Aditya Engineering College,
Surampalem, A.P, India

M M Bala Krishna
Department of Computer Science & Engineering, St Mary's Women's
Engineering College, Guntur, A.P, India

☰ Contents

I. Introduction

In today's digital world, the risk of malicious URLs is very harmful. Users have no time to think about the URL before clicking on that. The user faces a lot of cybersecurity issues after clicking malicious URLs. A user may receive a malicious URL through email or WhatsApp. A malicious URL is also similar to a legitimate URL. So, it is difficult to identify which is malicious, which is not. Unfortunately, all the URLs use the same structure with 5 component structure, "subdomain", "top_level domain", "2nd-level-domain", "subdirectory". For example, consider a URL <https://shop.yourstore.com/hats>. For this URL, HTTPS is a scheme, the shop is the subdomain, your store is the second-level domain, com is top-level domain and hats is the subdirectory. If the malicious URL clicked, the consequences are unknown. A virus file may be downloaded to the system or user credentials can be stolen or it can be a backdoor malware. 85% of the spam emails received in our mailbox are malicious links [1], [2]. There are several ways to detect malicious URLs. Some of the common techniques are secure email gateway, sandboxing, installing security protection plugins in the browser. But all the techniques had limitations too. In recent years, ML and DL methodologies are widely using for cybersecurity. Machine Learning able to read large volumes of data for analysis. There is a vast number of algorithms available for data analysis. Choosing a right algorithm is a crucial part of applying machine learning to cybersecurity. So, with the invention of machine Learning, cyber experts are having more choices for detecting phishing websites.

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Ad Prediction using Click Through Rate and Machine Learning with Reinforcement Learning

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- II. Previous Work
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- IV. Experimentation
- V. Conclusion

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Predicting the click-through rate (CTR) is an essential problem in enterprise systems such as online advertising. It is a crucial factor of advertisements platforms. It is fed into auctions to determine the final ranking of advertising. Machine Learning techniques are often used to tackle challenges involving human-computer interaction. Almost every website on the internet displays advertisements. Companies who want to promote their products use these websites as a method of promotion. The goal is to determine which of the company's several advertisement versions can get the best conversion rate, i.e., the most number of ad clicks. The major issue for firms that rely on ad revenue is ad placement on websites. The placement of the ad has a significant impact on whether or not the ad gets clicked. This kind of challenge lends itself very well to Reinforcement Learning algorithms. In this paper, we applied the machine learning approach for Ad Prediction. We used a dataset from Kaggle and applied two reinforcement learning algorithms Upper Confidence Bound, Thompson Sampling for predicting Ad position based on ad clicks and achieved a good prediction rate. All the implementations are done in python.

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A. Lakshmanarao
Department of Information Technology, Aditya Engineering College,
Surampalem, India

S. Ushanag
Department of CSE, University College of Engineering Kakinada JNTUK,
Kakinada, A.P, India

B. Sundara Leela

Department of CSE, University College of Engineering Kakinada JNTUK,
Kakinada, A.P, India

☰ Contents

I. Introduction

Advertising via internet sources has become a significant element in internet browsing. These advertisements are generally paid for searches and are based on a keyword auction idea. The company uses pay-per-click advertising with cost-per-click billing. In the recent digital world, CTR (Click Through Prediction) got lots of attention. Online advertising is a massive sector with a market value of more than \$50 billion. Because of focused advertising, internet advertisers are increasing. While major corporations can have capacity to consult personally in coordination to professional advertisers, minor scale organizations outsource their internet advertising to ad networks such as those supplied by Facebook, Google, and others. These ad networks deliver dynamic, rich, and appealing material with links to promote, and they reward their customers based on consumer clicks on those links. To boost their revenue, most e-commerce and search engine businesses are looking for tailored advertising. In general, internet advertising displays may be seen as different parties like media, marketers, and consumers. In the realm of internet advertising, one of the most important issues is how to promote to certain user groups. Inappropriate ads might degrade the user experience. Advertising does not always have the desired impact, and the media may be influenced as well. Text advertising on the internet is generally in the form of text, and marketers can buy media adverts using a cost-per-click (CPC) model. CTR is an indicator of online web users who intend to click advertising when they view advertisements on their websites. It's a ratio of the number of users that clicked on the ad to the number of times it was shown. A higher CTR value is always important when it comes to improving a company's income. Machine Learning is a field of study where predict by learning is famous in recent years. Machine Learning also has success stories in the advertising industry. In the internet serving of ads, machine learning has played a significant role. There has been a lot of studies done with Machine Learning in this area. The issue with displaying the ad in the same location is that after some time, the user will begin to ignore the space since he is accustomed to seeing ads in that location. As a result, he will begin to ignore that specific position in the future. As a result, the number of ad clicks will decrease. The problem with the first approach, which is to place them at random, is that it ignores the

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Abstract:

Face detection and verification based on the camera have progressed to such an extent that they may be integrated into several applications. Traditional cameras are shrinking and driven, adopted by innumerable applications like from household to IOT's in drones. Some of these applications inflicted by some limitations like form factor, weight and cost. But they require lens. Flat cams have no lens and these can be fabricated like microchips and thinner than dime. However, lens less detectors cannot at yet give their optics equivalents the same spatial resolution and clarity. With almost acceptable same resolution, speed and much lesser cost these flat cams are available. These are even flexible, foldable, wearable and even disposable and can find myriad applications in security. We suggest the use of certain approaches to detect and verify the lens less cameras nowadays for resolution, noise and artifacts. The images acquired from lens less cameras, which pave the door to their integration into new applications, can be conducted with great exactitude both facial detection and verification.

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R. L. Anushka

Department of ECE, Aditya Engineering College, Surampalem, A.P, India

Samudrala Jagadish

Department of ECE, Aditya Engineering College, Surampalem, A.P, India

V. Satyanarayana

Department of ECE, Aditya Engineering College, Surampalem, A.P, India

Mahesh K Singh

Accendere Knowledge Management Services, (CL Educate Ltd), New Delhi,
India

☰ Contents

I. Introduction

The digital revolution led to the drastic use of cameras in the last few decades. Cameras are the key selling features for recent smart phones (Google Pixel 3, Samsung Note 20, iPhone XS Max) [1]. On an assessment, it is found that more than a billion

camera modules are sold in the year 2017 alone. Shrinking and reduction of costs making them widely spread is the easy adoption. At present cameras are no longer taking photographs instead sensors have been used for face recognition from biometrics to surveillance and security [2].

Authors

R. L. Anushka
Department of ECE, Aditya Engineering College, Surampalem, A.P, India

Samudrala Jagadish
Department of ECE, Aditya Engineering College, Surampalem, A.P, India

V. Satyanarayana
Department of ECE, Aditya Engineering College, Surampalem, A.P, India

Mahesh K Singh
Accendere Knowledge Management Services, (CL Educate Ltd), New Delhi,
India

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- III. Proposed De-Striping Model
- IV. Result Analysis For De-Striping Noise
- V. Conclusion

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Abstract: Remote sensing images are in many domains used, including geographic, military, urban planning and environmental surveillance, but they are somewhat limiting their application due of additional stripe noise. Clear images from stripe pictures may be easily predicted in most existing stream noise reduction algorithms without considering the underlying characteristics of strip noise that cause the structure to be destroyed. Thus a new strategy was suggested in this study from the point of view of the image breakdown. The inherent qualities of strip noise and image properties are taken into consideration. The suggested methodology combines regularization, group regulation and television regularization in a framework for picture decomposition, into a (TV). The first two terms are used to execute stripe noise qualities through statistical analyses and regularization of the TV should evaluate the portions of the smooth structures of the stripe-free image. In addition, an effective alternating minimization methodology is proposed to solve the picture decomposition model.

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P.Mohana Satya
Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Samudrala Jagadish
Department of ECE, Aditya Engineering College, Surampalem, A.P., India

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Department of ECE, Aditya Engineering College, Surampalem, A.P., India

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I. Introduction

"Remote Sensing Technology" is used to detect and classify objects on earth based on Satellite or aircraft sensor-based technology [1]. Different areas, such as Geography, Military, Economic Monitoring and most disciplines of earth science have been used in recent years with remote sensors such as hydrology, ecology, meteorology, oceanography, etc. However, in real applications due to the "Stripping Effect" which is caused by inconsistent response between different detectors and photon effects. These photos are contaminated with many kinds of sounds such as stripe noise, Gaussian noise, etc [2]. Remote sensing is often characterized as the acquisition of object information without direct physical contact. Examples of remote sensors include our ore, eyes and cameras. Remote sensing is, more particularly, the knowledge of gathering and analyzing EM information using sensors on platforms (balloons, aircraft) or in the space (satellites). Note that the gray-scale image produced using a single band is black and white shown in Figure 1. Remote sensing core points are platform types used for remote sensing, passive and active remote sensing and satellite orbits [3].

Authors ^

P.Mohana Satya
Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Samudrala Jagadish
Department of ECE, Aditya Engineering College, Surampalem, A.P., India

V. Satyanarayana
Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Mahesh K Singh
Accendere Knowledge Management Services, (CL Educate Ltd), New Delhi,
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Abstract:In any country's economic growth, agriculture plays a crucial function. In crops management, machine learning techniques are mainly employed, following the control of far... [View more](#)

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- I. Introduction
- II. Related Works
- III. Methodology For Crop Management Process
- IV. Results Analysis and Discussion
- V. Conclusion

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Abstract: In any country's economic growth, agriculture plays a crucial function. In crops management, machine learning techniques are mainly employed, following the control of farming conditions and the management of animals. They are used in agriculture to anticipate crop yield and quality and the production of livestock. As the population increases, the climate changes are frequent and the resources are limited, it becomes a challenge to meet food demands of the people today. Machine learning (ML) is the mechanism for driving this advanced technology. It allows to the machine for learn without being programmed directly. The agricultural machinery enabled by ML and Internet of Things (IoT) is an important part of the future farm revolution. There has been a rigorous discussion on IOT based network technology involving network architecture and layers. In this research paper described a systematic examination of agricultural with ML applications. The focus areas are the prediction of soil factors including organic carbon and moisture content in the prediction of crop yields, diseases and the detection of weeds in crops as well as species.

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Karri Divya Jyothi

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

M. S. R. Sekhar

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Sanjeev Kumar

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Contents

I. Introduction

In the global economy, agriculture plays a vital role, through the continued progress of the human population, pressures on the agricultural sector will intensify. Agricultural with perfectionism farming, nowadays sometimes called digital agriculture and it is innovative fields of agriculture science. Which is used intensive data process to promote farm yield while reducing their influence on the environment [1]. Sensors in present farming systems create a-ton of information, which is used to make informed decisions, that allow a more accurate and rapid decision-making process, making it possible to have a better grasp on the operational environment (the interplay between crop, soil, and weather) and operations themselves (machine data). With BMTs and high-performance computers, ML has developed new prospects in agricultural operational environments that can disassemble, quantify and recognize data-rigorous procedures [2]. ML can be described as the scientific field, among other definitions, which enables machines to study deprived of being firmly programmed [3]. Annually ML is applicable to increasingly scientific domains such as bioinformatics, biochemistry, medicine, meteorology, economics, robotics, aquaculture, food safety, and climate security [4]. Here describes in this study an exhaustive review of ML's applicability in agriculture. A variety of relevant studies highlighting the key and unique characteristics of popular ML models are provided [5].

Authors

Karri Divya Jyothi

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

M. S. R. Sekhar

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Sanjeev Kumar

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

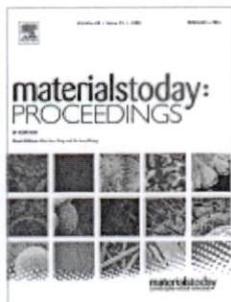
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Development of a mechanism for seed cum fertilizer drill

Rashesh Vagadia ^a, Hardik Kadegiya ^a, Prit Desai ^a, Anshul Gautam ^a, Himanshu Chaudhary ^a, N.R.N.V. Gowripathi Rao ^b  

^a Malaviya National Institute of Technology, Jaipur, Rajasthan 302017, India

^b Aditya Engineering College, Surampalem, Andhra Pradesh 533437, India

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Abstract

The seed metering mechanism is the heart of the seed drill. The seed drill is a machine that places the seeds upto a predetermined desired depth. This ensures that seeds will be distributed evenly. The main aim of the paper is to develop a new seed-metering mechanism. By developing the new mechanism, the goal is to reduce the inefficiency of the current mechanism in terms of seed crushing rate and maintenance time. Also, there was a focus on developing a versatile seed drill to adjust row-row and seed-seed distance which is a major factor related to the net productivity of the crop.

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Keywords

Seed drill; Metering mechanism; Screw conveyor

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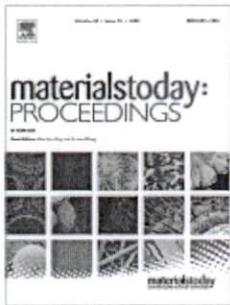
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Energy management with blockchain technology in DC microgrids

G. Sreeramulu Mahesh ^a ✉, G. Dilli babu ^a, V.G.T. Rakesh ^a, S.B. Mohan ^a, P.S. Ranjit ^b

^a Sri Venkateswara Engineering College, Tirupati, India

^b Aditya Engineering College (A), Surampalem, A.P, India

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Abstract

The energy management is one of the key parameter in the Demand Side Management and is convinced application in an Industry 4.0 platform. To control the peak load demands and to improve the Demand Side Management objectives like power sharing technologies, electricity tariff, scheduling, incentives and policies, the Blockchain Technologies are to be enabled. In addition, the Blockchain Technology also helps to enable the decentralization in terms of energy consumption to various consumers, power estimation requirements and provides greater security in trading the electrical energy. In this paper, the concept of Blockchain Technology for the DC microgrid is defined, also, the power sharing between the energy storage elements and the electrical loads through Bi-Directional converters with Fuzzy Logic Controller are proposed. The proposed system is simulated with MATLAB Simulink software and various waveforms are shown.

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Keywords

DC microgrid; Bi-directional converters; Islanded mode; Energy storage elements; Blockchain technology; Demand side management

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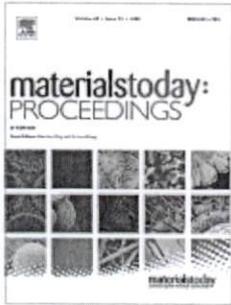


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Influence of maskless electrochemical micromachining process parameters during microtexturing

S. Kunar^a ✉, G. Kibria^b

^a Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

^b Department of Mechanical Engineering, Aliah University, Kolkata 700156, India

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Abstract

Maskless electrochemical micromachining (EMM) is a prospective procedure for elevated precision microtexturing. Particularly the microtexturing of substrates without any mechanical influence or heat affect is a substantial characteristic for this process. Moreover, the anodic dissolution performance of job material is only characterized by its electrochemical features. This creates maskless EMM an alternative procedure for electrochemically hard to machine materials. Maskless EMM method with developed vertical cross flow method has been recommended involving microtexturing with higher symmetrical uniformity that are produced on stainless steel (SS304) surface. In this paper, maskless EMM method is a promising cost-efficient substitute for microtexturing containing rectangular micropatterns. The advanced setup has the developed machining cell, flow system and unique electrical connection unit. The machining unit has fixturing arrangements of electrodes, flow system, and electrical connection arrangement. Within the machining unit, the advanced flow scheme is a vertical cross flow system that aids in the fabrication of high-quality microtextured surface. One coated textured tool can produce many rectangular micropatterns with high quality. The effect of process parameters such as electrolyte concentration, machining time, and inter electrode gap (IEG) is evaluated on surface roughness (R_a), length overcut, machining depth and width overcut when fabricating micropatterns is investigated. The best process variables i.e., 50 μm IEG, 6 s machining time and 15 g/l electrolyte concentration manufacture good quality micropatterns.

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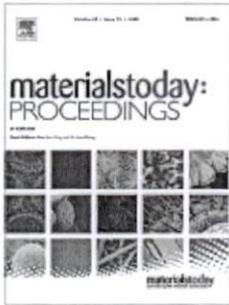
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Improvement in performance criteria of varactor micropattern by pulsed maskless electrochemical micromachining

S. Kumar^a ✉, G. Kibria^b

^a Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

^b Department of Mechanical Engineering, Aliah University, Kolkata 700156, India

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Abstract

With the progression of many types of micropattern generation using unconventional micromachining techniques has extensive applications in many advanced fields. In this paper, introducing a defined shape of varactor type micropattern generation on stainless steel samples using pulsed maskless electrochemical micromachining (EMM) is more imperative for the application of radio frequency (RF) and microwave communication systems. In this paper, maskless pulsed EMM system is developed for carrying out the investigation during generation of varactor micropatterns. One single masked tool can produce numerous high quality micropatterned workpieces. Pulse current is used to enhance the regularity of machining. Outcomes of EMM process variables i.e., duty ratio and pulsed frequency on machining criteria i.e., material removal rate (MRR), overcut, depth, surface finish and taper kerf angle are investigated during fabrication of varactor micropattern. From the experimental results, the best parametric combination such as 20 kHz frequency and 30% duty ratio can generate the regular varactor micropattern.

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Keywords

Maskless EMM; Varactor; Micropattern; Reused coating tool; Machining accuracy; Surface finish; Machining depth

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Parametric study of surface characteristics of laser micro-channel milling of zirconia (ZrO_2) at defocused condition

Omar Faruk Biswas^a, Abhishek Sen^b, Golam Kibria^a ✉, Sandip Kumar^c

^a Department of Mechanical Engineering, Aliah University, Kolkata 700160, India

^b Department of Mechanical Engineering, Calcutta Institute of Technology, Howrah 711316, India

^c Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

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Abstract

Laser beam micro-channel milling (LBMM) is a recently emerged novel micromachining approach, which can be a useful technique for the machining of hard-to-machine advanced engineering ceramics. LBMM provides better competence compared with remaining non-traditional machining processing regarding the material removal rate, better surface characteristics, and ability to cut different nature of materials disregarding of electrical conductivity and hardness. Moreover, micro-channel with high accuracy and precision can be fabricated by this method. This process on zirconia (ZrO_2) ceramic materials was investigated in this paper using different parametric combinations. The surface roughness (R_a and R_z) was observed using a precision profilometer. Besides, laser milling operation at defocused condition was performed to reduce the surface irregularities of the machined surface. It was seen that the defocusing condition machining of laser beam results in a low value of surface finish (R_z and R_a) compared to results obtained in focused condition machining of the laser. The optical microscopic view of the machined surface also confirmed the better-machined surface at defocused conditions.

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Keywords

Micro-milling; Fiber laser; Laser micromachining; Micro-channel; Zirconia

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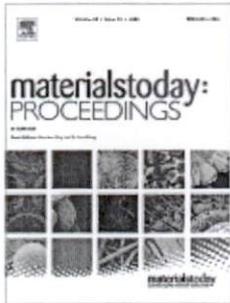
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Experimental investigation on synthesis of biodiesel from non-edible Neem seed oil: Production optimization and evaluation of fuel properties

S.K. Dash^a, P.V. Elumalai^a, P.S. Ranjit^a, P.K. Das^a, R. Kumar^a, S. Kunar^a, N.H. Papu^b

^a Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

^b Department of Mechanical Engineering, NERIST, Arunachal Pradesh 791109, India

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Abstract

Energy has always been an important part of society development. The traditional method of harnessing energy from fossil resources has proved to be not sustainable and environmentally disastrous. The energy crisis augmented with baffled economy affecting many poor and developing countries. However, with technology the difficulty has been brought to a safe level day by day. Researchers have been keen on developing several sustainable energy resources for meeting the required energy demand by reducing pressure on fossil fuel. This solves two main issues: first, it decreases the environmental pollution as burning of fossil resources leads to the emanation of harmful pollutants to the atmosphere and second, it preserves the fossil resources for future generation. Biofuel is part of such kind of development. In this study, Neem oil is selected for biodiesel preparation. Neem biodiesel is prepared from Neem seed oil using sodium hydroxide as base catalyst. The molar ratio of oil to alcohol, catalyst amount, reaction speed, temperature and time has been optimized and finally, the fuel properties are also evaluated as per ASTM standards. With optimal settings maximum yield found to be 96%. The acid value contained within 0.09 mg KOH/g and cetane number found to be 52, which is more than diesel cetane index.

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Keywords

Biofuels; Biodiesel production; Neem oil; Fuel properties; Sustainability

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Abstract:

The generation of electrical energy from solar energy is one of the most promising utilization of solar energy technology and it can be achieved by the application of solar photovoltaic (PV) panel. In this paper an experimental study has been conducted to examine the effect of solar radiation and ambient temperature on the surface temperature of the solar photovoltaic panel. With the help of experimental measurements, a multi-linear regression model is developed relating the three quantities. The developed model validated with the actual measured values shows good accuracy with small values of root mean square error. During the study, the recorded value of maximum panel temperature was 78.50°C for the atmospheric condition which having solar radiation of 1140 W/m² and ambient temperature of 36°C. The developed relation and subsequent outcomes of the study will help the PV panel designers and manufacturers in comprehending the effects of atmospheric parameters on the temperature of the photovoltaic panel.

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Abhishek Kumar Tripathi

Department of Mining Engineering, Aditya Engineering College (A),
Surampalem, A.P, India

Shashwati Ray

Department of Electrical Engineering, B.I.T. Durg, Bhillai, Chhatisgarh, India

Mangalpady Aruna

Department of Mining Engineering, National Institute of Technology Karnataka,
Surathkal, India

☰ Contents

I. Introduction

The fulfillment of the demand of electrical energy is the prime need of the modern civilization. But, the continuous growth of population and depletion of fossil fuels makes this task more challenging. Thus, it is important to discover supplementary methods of energy generation which can fulfill the demand of energy consumer. In this manner, solar energy, which is also termed as the renewable energy, could contribute a major share in the generation of electrical energy. The utilization of solar energy is not only promoting the green environment by reducing the use of coal-based electricity method, but also providing the easy access of electricity in the remote location. The energy from the sun is coming in the form of sunlight can be comprised as light and heat[1]. This sunlight can be converted into useful electrical energy by using a conversion device namely solar photovoltaic (PV) panel. This PV device works on the principle of photovoltaic effect, this is why, Continue Reading as photovoltaic panel[2]. In general, photovoltaic panels are made up of silicon semiconducting material[3]. As silicon is cheaply available in abundance in the earth crust which makes it the most suitable choice for photovoltaic material. Therefore, the usage of photovoltaic energy conversion becomes more popular in the present energy market. Despite many advantages of solar PV energy conversion, there are also some disadvantages associated with it. As the PV panels are designated to operate in an open atmosphere where it suffers from the variation of external parameters, namely, solar radiation, ambient temperature, dust, humidity, wind speed, shading, bird and ice droppings which is detrimental to PV panel's efficiency [4]. These parameters severely affect the operation of PV panel and inordinate amount of any one of these parameters on PV panel can do the physical damages[5].

Authors

Abhishek Kumar Tripathi

Department of Mining Engineering, Aditya Engineering College (A),
Surampalem, A.P, India

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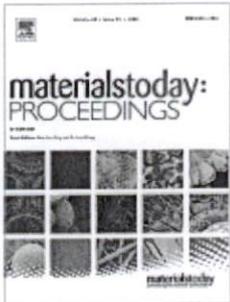
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Experimental investigation on the proneness of coal samples to spontaneous heating using proximate analysis and crossing point temperature method

Jannela Yernaideu ✉, Abhishek Kumar Tripathi ✉

Department of Mining Engineering, Aditya Engineering College (A), Surampalem, Andhra Pradesh, India

Available online 21 July 2021, Version of Record 7 October 2021.

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Abstract

Auto oxidation or spontaneous heating of coal is one of the major problems in coal mining industries. Many coal mines fires were reported due to auto oxidation. Therefore, a detailed investigation of the coal properties against the proneness to the spontaneous heating is very much necessary. In this paper an experimental investigation on the field collected coal sample was conducted to identify the proneness of these samples towards the spontaneous heating. To perform this study, the five types of coal sample were gathered from the different part of Indian coal mines. The inherent properties of the coal samples namely, moisture content, volatile matter, ash content and fixed carbon were calculated in percentage in the laboratory. Further, the laboratory testing on the coal samples were performed to measure the crossing point temperature which is nothing but the temperature of coal at which the coal temperature equal to the reference sample (bath) temperature. This will help in understanding the susceptibility of coal samples to self-heating. In the experimental analysis the maximum values of proximate analysis of moisture content, volatile matter, ash content and fixed carbon are 21.48%, 43.09%, 26.84% and 44.81% respectively were observed among all five coal samples. Moreover, the maximum and minimum value of crossing point temperature of the field collected samples were correspondingly 179.6°C and 135.4°C.

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Coal; Spontaneous heating; Moisture content; Volatile matter; Fixed carbon; Crossing point temperature

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Satya Hemanth Appala
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Dept. of Electrical and Electronics Engineering, Aditya Engineering College
(Affiliated to JNTU Kakinada), Kakinada, India

Jagruthi Vanka
Dept. of Electrical and Electronics Engineering, Aditya Engineering College
(Affiliated to JNTU Kakinada), Kakinada, India

P.S.D Bhima Raju
Dept. of Electrical and Electronics Engineering, Aditya Engineering College
(Affiliated to JNTU Kakinada), Kakinada, India

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I. Introduction

Power Electronic technology is finding several applications in industries, the power sector, as well as academia [1]–[4]. Many of the motor drives in chemical industries, power sector, manufacturing industries use the power electronic interface [5]–[8]. With the advent of high power rated power electronic devices like MOSFETs and IGBTs, as well as different types of converters and inverters are begun to develop [9]–[11]. The application of power electronic technology to motor drive applications offers the advantages of a wide range of controllability, the ability to respond for step-changes in load, and lower cost. The asynchronous motor has the advantages of self-excitation, a higher degree of flexibility to respond for speed changes, a highly rugged structure, and robust nature.

Authors ^

Satya Hemanth Appala
Dept. of Electrical and Electronics Engineering, Aditya Engineering College
(Affiliated to JNTU Kakinada), Kakinada, India

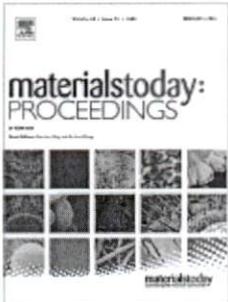
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(Affiliated to JNTU Kakinada), Kakinada, India

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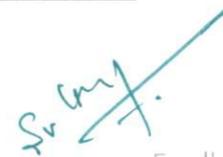
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Experimental investigation of friction stir welding on aluminium AA6063

V. Hariharan ^a ✉, P.V. Elumalai ^b ✉, M. Nambiraj ^a, J. Jayakar ^a, M. Parthasarathy ^c, V. Venkata Kamesh ^b

^a Department of Mechanical Engineering, Dhanalakshmi College of Engineering, Tambaram 601301, Tamil Nadu, India

^b Department of Mechanical Engineering, Aditya Engineering College, Surampalem East Godavari 533437, Andhra Pradesh, India

^c Department of Automobile Engineering, Vel Tech Rangarajan Dr.Sagunthala R&D, Institute of Science and Technology, Avadi, India

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Abstract

Friction Stir Welding, at which relative motion between the specimen and tool generates heat, as a result of which the edges are connected. Because of its excellent properties including very strong resistance to corrosion, weldability, and high fatigue strength, aluminum alloy is used in aerospace applications. Experiments were carried out on Aluminum alloy AA6063 and AA6201 in a Vertical CNC Machine. The performance parameters were calculated and the results indicate a definite relationship with the strength in tension as well as process parameters. For a selection of desired process parameters, friction stir welding process variable database is, therefore, to be created. ANOVA test found the most important process parameter which affects the strength in tension.

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Keywords

Friction stir welding; ANOVA test; Strength in tension

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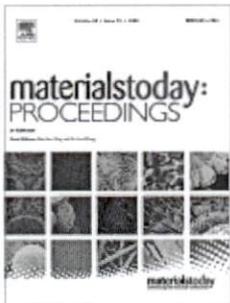


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A rigidity approach to find distinct mechanisms of a planar kinematic chain

Vinjamuri Venkata Kamesh ^a, D.V.S.S.V. Prasad ^b, P.S. Ranjit ^a, Bh. Varaprasad ^a, V. Srinivasa Rao ^c

^a Mechanical Engineering, Aditya Engineering College(A), Surampalem 533437, Andhra Pradesh, India

^b Mechanical Engineering, Aditya College of Engineering, Surampalem-533437, Andhra Pradesh, India

^c Mechanical Engineering, Raghu Engineering College(A), Dakamarri-531162, Visakhapatnam Dist., Andhra Pradesh, India

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Abstract

In the type synthesis of kinematic chains, identification of distinct mechanisms of a kinematic chain is an important step. The links which are having same functional behavior are grouped as same inversion. In the present paper, a novel algorithm based on the Rigidity concept is proposed. Three parameters are defined in the present algorithm namely Primary Connectivity Index (PCI), Secondary Connectivity Index (SCI) and Net Connectivity Index (NCI). The proposed method is tested on various linkages (8, 9, 10) with different Degree of Freedom (DoF) and the results are in correlation with earlier literature. 8-link 1-dof chains findings are presented as an example for the proposed method.

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Robotic manipulator; Gripper; Distinct mechanism; Rigidity; Degree of Freedom

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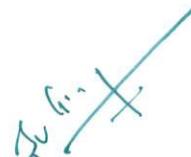
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Abstract:

This paper presents the implementation and the performance analysis of intelligent control schemes in permanent magnet controlled Synchronous motor. The PMSM of a drive can be achieved by the space vectors through a lookup table, and by using the pulse width modulation (PWM) inverters the regulated sine waves are generated. Permanent magnet synchronous motors (PMSM) generally have a non-linear characteristic whose dynamics are changing concerning time. The Intelligent controllers were used to emulate the base of the relative vector upon its classification. The intelligent controllers were implemented to regulate the performance of the PMSM motor drive. Under steady-state conditions, by the implementation of neural and fuzzy controllers the torque ripple factor and harmonics distortion are minimized and the induction machines can be controlled with DTC. Further to improve the torque response and ripples the Neural & fuzzy logic controllers are used in the PMSM motor drive. The above-obtained results by the (DTC) scheme which was applied to the PI (or) PD controller. The proposed network topologies effectiveness has been verified by using simulation tools like MATLAB/SIMULINK/AUTOCAD.

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Mula Sreenivasa Reddy
Department of Electrical and Electronics Engineering, MLR Institute of
Technology, Hyderabad, T.S, India

V.S.R. Subrahmanyam
Department of Electronics and Communication Engineering, MLR Institute of
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Department of Electrical and Electronics Engineering, MLR Institute of
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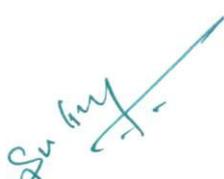
G.V.S. Uma Shankar
Department of Electrical and Electronics Engineering, Aditya Engineering
College, Surampalem, A.P, India

Contents

1. Introduction

The Permanent magnet synchronous Motor (PMSM) drive can be controlled by a controlling method called the vector-controlled method which is under existence in many industries. The Permanent magnet synchronous motor (PMSM) has various performance characteristics depending upon its energy and KVA ratings, and it is becoming popular due to its features like high torque, high power, low noise, and high efficiency. However, these PMSM drives will be playing an important role in the industry. These drives need to coordinate transformation, precise system parameters, and inner current loop. On the other side, the Direct torque control (DTC) method offers faster response in evading the torque and the coordinate transformation. Intensity to variation parameter and reestablishment of the speed as a reference value with respect to the time and following the disturbances is the major criteria considered for the higher performance of the drive used in various appliances like rollers, robotics, grinding mills, wheat flour mills etc. The use of various controllers like PI and PID controllers under these criteria is more, and the energy and KVA ratings of the PMSM motor drive is best suitable for these applications. So, the results obtained from these applications leads to the calculation of certain parameters like reactance and efficiency of the motor drive in working condition and in normal condition. As, the PI and PID controllers are too sensitive, it is very difficult to control the speed and the gain of the motor drive, variations in the parameter readings and the disturbance occurring in the load. Hence a special type of controller for the PMSM drive should be designed to achieve the speed control in higher performance of the drive.

Figure 1:


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IV. Experimental Results

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B Veera Narayana
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College (A), India

CH Govinda
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College (A), India

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Department of Electrical and Electronics Engineering, Aditya Engineering
College (A), India

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Department of Electrical and Electronics Engineering, Aditya Engineering
College (A), India

J Pavan
Department of Electrical and Electronics Engineering, Aditya Engineering
College (A), India

N Rajesh
Department of Electrical and Electronics Engineering, Aditya Engineering
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I. Introduction

Sensorless control calculations of the BLDC motor. In BLDC motors, generally three Hall Effect sensors are mounted inside the BLDC motor with 120 electrical degrees stage distinction to recognize perpetual magnet rotor position in the sensor mode control conspire. Killing rotor position identification sensors in the BLDC motor lessens the expense and development intricacy of the motor. Anyway the BLDC motor control calculation will be more confounded by implementing the sensorless control techniques [1]. In the sensorless control mode, rotor position is recognized through yield boundaries of the motor like voltage and current [2]. The primary drawbacks of sensorless procedures are Back-Electro attractive power detecting at low velocities and transient time and intermittent reaction because of high recompense rates. Important exploration works have been distributed on various Digital sign preparing controlled PWM Chopper with C-dump converter is available [3]. For keeping up the steady torque activity of the BLDC motor a double speed and current shut circle control are utilized to keep a consistent voltage to recurrence ratio.

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D. Sai Sudheer
Electrical and Electronics Engineering, Aditya Engineering College (JNTUK),
Surampalem, India

Sowmya Reddy
Electrical and Electronics Engineering, Aditya Engineering College (JNTUK),
Surampalem, India

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Electrical and Electronics Engineering, Aditya Engineering College (JNTUK),
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Ch. B. Ayyapparaju
Electrical and Electronics Engineering, Aditya Engineering College (JNTUK),
Surampalem, India

M. Srinivas Reddy
Electrical and Electronics Engineering, Malla Reddy Institute of Technology
(JNTUH), Hyderabad, India

Authors ^

D. Sai Sudheer
Electrical and Electronics Engineering, Aditya Engineering College
(JNTUK), Surampalem, India

Sowmya Reddy
Electrical and Electronics Engineering, Aditya Engineering College
(JNTUK), Surampalem, India

J. Satish Kumar
Electrical and Electronics Engineering, Aditya Engineering College
(JNTUK), Surampalem, India

Ch. B. Ayyapparaju
Electrical and Electronics Engineering, Aditya Engineering College
(JNTUK), Surampalem, India

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Electrical and Electronics Engineering, Malla Reddy Institute of Technology
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Abstract: The Phishing is a sort of social designing assault regularly used to take client information, including login accreditations and credit card numbers. With the enhancements in internet technology, websites are the major resource for the cyber-attacks. There are several counter measures available for avoiding phishing attacks, but phishers are changing their attacking methods from time to time. One of the most widely used techniques for solving cybersecurity issues is machine learning. From last several years, Machine Learning and Deep Learning Techniques are suitable for solving security related issues. Machine Learning is most suitable for detecting phishing attacks because most of the phishing attacks have common characteristics. This paper has applied several machine learning techniques for detecting the phishing attacks. Here, two prioritybased algorithms are proposed. Based on the results of these algorithms, the final fusion classifier is decided. We used a dataset from UCI and applied a novel fusion classifier and achieved an accuracy of 97%. We used Python for implementing our experiments.

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A. Lakshmanarao

Department of Information Technology, Aditya Engineering College, Surampalem, A.P, India

P.Surya Prabhakara Rao

Department of Information Technology Ghatkesar, Anurag University, Hyderabad, Telangana, India

M M Bala Krishna

Department of Computer Science & Engineering, St Mary's Womens Engineering College, Guntur, A.P, India

☰ Contents

I. Introduction

Social Engineering is the most widely used term today. Every individual facing lots of problems with cyber threats. One of the most widely used attacks in social engineering is phishing. It

happens when an attacker behaves like a trusted source and hoodwinks a casualty into opening an email, text, or instant message. Phishing can be done in different ways. For example, a spam email from some university is distributed to many faculty members. The email may ask the user to click the link. On clicking the link, it opens a duplicate website page. The attacker monitors and hijacks the new password. In a phishing attack, the users are forced to link to illegal websites and revealed their critical information like bank-related information, credit card details, passwords, etc. One of the most widespread solutions for cyber-attacks is using an antivirus or firewall. But unfortunately, antivirus software is unable to fully prevent phishing attacks.

Authors

A. Lakshmanarao

Department of Information Technology, Aditya Engineering College, Surampalem, A.P, India

P.Surya Prabhakara Rao

Department of Information Technology Ghatkesar, Anurag University, Hyderabad, Telangana, India

M M Bala Krishna

Department of Computer Science & Engineering, St Mary's Womens Engineering College, Guntur, A.P, India

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Abstract: The number of people using mobile devices increasing day by day. SMS (short message service) is a text message service available in smartphones as well as basic phones. So, the traffic of SMS increased drastically. The spam messages also increased. The spammers try to send spam messages for their financial or business benefits like market growth, lottery ticket information, credit card information, etc. So, spam classification has special attention. In this paper, we applied various machine learning and deep learning techniques for SMS spam detection. we used a dataset from UCI and build a spam detection model. Our experimental results have shown that our LSTM model outperforms previous models in spam detection with an accuracy of 98.5%. We used python for all implementations.

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Sridevi Gadde

Department of Computer Science & Engineering, Raghu Engineering College,
Visakhapatnam, A.P, India

A. Lakshmanarao

Department of Information Technology, Aditya Engineering College,
Surampalem, A.P, India

S. Satyanarayana

Department of Computer Science & Engineering, Raghu Engineering College,
Visakhapatnam, A.P, India

☰ Contents

I. Introduction

The number of mobile phone (smartphone) users increases from 1 billion to 3.8 billion in five years [1]. The top three countries using more mobiles are China, India, US. Short Message Service or SMS is a text messaging service available for the last several years. SMS service can be availed without internet also. So, SMS service is available in smartphones and basic mobiles also. Although smart phones bring several apps like WhatsApp for text messaging, this service can be availed with the help of the internet only. But SMS can be availed at any time. So, the traffic for SMS service increasing day by day. A spammer is a person/company which is responsible for unsolicited messages. For their organization benefits or personal benefits, spammers sending a vast number of messages to the users. These messages are called spam messages. Although there are various SMS spam filtering techniques available [2], still there is a need to handle this problem with advanced techniques. Mobile users may get annoyed by spam messages. Spam messages can be two types, SMS spam or email spam. The purpose of email spam or SMS spam is the same. Generally, these spam messages are sent by spammers for the promotion of their utilities or business. Sometimes, the users may also undergo financial loss due to these spam messages. Machine Learning is a technology, where machines learn from previous data and made a prediction on future data. Nowadays, machine learning and deep learning can be applied to solve most of the real-world problems in all sectors like health, security, market analysis, etc. There are various techniques available in machine learning like supervised learning, unsupervised, semi-supervised learning, etc. In supervised learning, the dataset is having output labels, whereas unsupervised learning deals with datasets with no labels. We used a dataset from UCI with labels, So we applied various supervised learning algorithms for SMS spam detection.

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Multi Focus Image Fusion (MFIF) is used to compensate depth of field problem of cameras in which an amalgamation of the corresponding features from two are more images to a single image which gives all significant features of input images. According to the optical lens formula, in the captured image some objects are in focus some are out of focus due to depth of field problem of cameras. In MFIF two or more different images of same scene having diverse focuses are fused to generate all in focus image. The resultant fused image improved in terms of visual perception, efficiency. The applications of MFIF involves several fields like medical diagnostics, military, forensic, multi-focus image integration, pattern recognition, remote sensing, biomedical imaging etc. In this paper we mainly concentrate on various MFIF methods. By reviewing the applications, advantages, challenges and limitations in the fusion methods this review article provides wide range of references for the researchers working in the area of MFIF.

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K.H.K. PRASAD
 Department of E.C.E, Aditya Engineering College, Surampalem, AP, India

S.B.G. TILAK BABU
 Department of E.C.E, Aditya Engineering College, Surampalem, AP, India

R.V.V. KRISHNA
 Department of E.C.E, Aditya College of Engineering and Technology,
 Surampalem, AP, India

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I. INTRODUCTION

Image fusion is a method which amalgamates the corresponding features from a sequence of input images of the same scene. The resultant fused output image is more informative, contains better quality features, and as well contains all redundant, complementary information of the input images. Depending up on the consideration of the input images for fusion, different image fusion types exist. In the **Online Reading** process we need to consider the different images of the same scene obtained from different sensors, different view positions or different times. The main objective of image fusion process is to reduce redundancy and uncertainty. Image fusion process got more significance due to its benefits such as more spatial and temporal coverage, better reliability and reduction in uncertainty.

Authors ▲

K.H.K. PRASAD
 Department of E.C.E, Aditya Engineering College, Surampalem, AP, India

S.B.G. TILAK BABU
 Department of E.C.E, Aditya Engineering College, Surampalem, AP, India

R.V.V. KRISHNA
 Department of E.C.E, Aditya College of Engineering and Technology,
 Surampalem, AP, India

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Abstract: Cardiovascular diseases (heart-related diseases) are the reason for the deaths of 18 million people every year in the world. According to WHO,31% of the deaths worldwide are due to heart-related diseases. In this paper, we proposed a novel machine learning model for heart disease prediction. The proposed method was tested on two different datasets from Kaggle and UCI. We applied sampling techniques to the unbalanced dataset and feature selection techniques are used to find the best features. Later several classifier models were applied and achieved good accuracy with ensemble classifier. The experimentations on two datasets shown that the proposed model is effective for heart disease prediction. Python was used for all implementations.

Authors

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A. Lakshmanarao
Department of Information Technology, Aditya Engineering College,
Surampalem, A.P, India

A. Srisaila

Department of Information Technology, V.R Siddhartha Engineering College,
Vijayawada, A.P, India

T.Srinivasa Ravi Kiran
Department of Computer Science, P.B. Siddhartha College of Arts & Science,
Vijayawada, A.P, India

☰ Contents

I. Introduction

Cardiovascular diseases are a cluster of diseases caused due to heart problems. Some of these diseases are coronary heart disease (CHD), peripheral arterial disease, congenital heart disease, cerebrovascular disease, etc. People with the peripheral arterial disease are having more chances of heart attack or stroke. The risk with PAD is generally increasing with the age. For some people, the structure of the heart is problematic from birth. Congenital heart disease is a such type of disease. This disease changes blood flow direction and creates heart-related problems. The cerebrovascular disease damages the blood vessels. If the blood supply to the brain is stopped then there may be a chance of brain damage. Improper food habits, continuous use of tobacco, and alcohol [1] are the major reasons for heart-related diseases. The common symptoms of the disease are pain in the left shoulder or elbow, pain in the chest. But, in some cases, there are no symptoms to identify these diseases. Among all the countries, the United States is the main country that is suffering from more deaths due to this disease. Traditional methods for identifying this disease are by analyzing the patient's previous records, but this method always not sufficient for diagnosing the disease.

Authors

A. Lakshmanarao
Department of Information Technology, Aditya Engineering College,
Surampalem, A.P, India

A. Srisaila
Department of Information Technology, V.R Siddhartha Engineering College,
Vijayawada, A.P, India

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Department of Computer Science, P.B. Siddhartha College of Arts &
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K Prathyusha

Department of Computer Science & Engineering, Vignan's Institute of Management and Technology for Women, Hyderabad, Telangana, India

K Helini

Department of Computer Science & Engineering, Vignan's Institute of Management and Technology for Women, Hyderabad, Telangana, India

Ch V Raghavendran

Department of Information Technology, Aditya College of Engineering & Technology, Surampalem, Andhra Pradesh, India

NSL Kumar Kurumeti

Department of Computer Science & Engineering, Aditya Engineering College(A), Surampalem, Andhra Pradesh, India

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SECTION I.
Introduction

The world is facing one of its most horrible crises regarding public health due to COVID-19, which was first identified in China in late December 2019 [1]. Infection of this virus is no longer limited to Wuhan. By January 2020 nine cases of COVID-19 infection have been stated in Thailand, Japan, Korea, USA, Vietnam, and Singapore through air travel is likely [2] [3]. It has spread to almost all parts of the globe with major impacts on health and the economy. The World Health Organization (WHO) has warned that the COVID-19 pandemic is deteriorating worldwide and things won't return to the old normal for some time [4] [5] [6] [7]. An important source for infecting this virus is asymptomatic carriers. Fever, cough, and breathing problems are important symptoms and the infection can be transmitted during the incubation period [8]. The infection rate of COVID-19 looks to be greater than that for the seasonal flu and MERS, with the kind of possible estimates covering the infection rates of SARS and Ebola.

In India, the first COVID-19 case is confirmed on 30th January 2020 in Kerala state. By March 4th, the country has witnessed a sudden jump of 29 cases. The positive cases crossed 100 by March 15th, 2020. The Government has called for a "Janata Curfew" on 22nd March. To face this pandemic, the Government of India has imposed Lockdown for three weeks from 25th March 2020 to 14th April 2020. By the end of March, the number of cases crossed 1000. The Lockdown is further extended in three phases as 2.0, 3.0, and 4.0 with phase by phase relaxations. On 30 May, the Government stated that the current lockdown would be more prolonged till 30 June in containment zones, with amenities restarting in a phased manner, beginning from 8 June,

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An additive approach to find distinct mechanisms of a planar kinematic chain

Vinjamuri Venkata Kamesh^a✉, D.V.S.S.S.V. Prasad^a, P.S. Ranjit^a, Bh. Varaprasad^a, V. Srinivasa Rao^b✉

^a Mechanical Engineering, Aditya Engineering College (A), Surampalem 533437, Andhra Pradesh, India

^b Mechanical Engineering, Raghu Engineering College (A), Dakamarri 531162, Visakhapatnam Dist., Andhra Pradesh, India

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Abstract

In the type synthesis of kinematic chains, identification of distinct mechanisms of a kinematic chain is an important step. The links which are having same functional behavior are grouped as same inversion. In the present paper, an additive approach based on connectivities of the links is proposed. The functional behavior of any link as a part of k-chain can be found by means of topological analysis. In general, adjacency of a link with other links is a primary tool for the topological analysis. In the present paper, the extent of adjacency consideration is the main criteria by which similar functional behavior leading to same inversion is identified. A new parameter 'Additive Adjacency' is defined in the algorithm. A new computation table 'Remote Adjacency Influence Table' (RAIT) is introduced to control the progress of the adjacency calculations. The proposed method is tested on various linkages (8, 9, 10) with different Degree of Freedom (DoF).

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Adjacency; Kinematic chain; Link; Distinct mechanism; Remote influence

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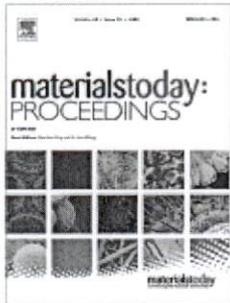


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Experimental investigations on gaseous hydrogen supplemented Aleurites Fordii biodiesel in a direct injection diesel engine for performance enhancement and reduction in emissions

Ranjit P.S.^a ✉, Swapnil Sureshchandra Bhurat^b, Dash Santosh Kumar^a, Venkata Kamesh Vinjamuri^a, Saravanan A.^a, Varaprasad Bh.^a, Murugan M.^c, Yashvir Singh^d, Sreeramulu Mahesh G.^e

- ^a Aditya Engineering College (A), Surampalem, India
- ^b University of Petroleum & Energy Studies (UPES), Dehradun, India
- ^c Aditya College of Engineering and Technology, Surampalem, India
- ^d Graphic Era University, Dehradun, India
- ^e Sri Venkateswara College of Engineering, Tirupati, India

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Abstract

The exponential increase in energy demand and the unavailability of fossil fuels and environmental issues accelerated researchers' work on alternative fuels. Aleurites Fordii biodiesel is one such alternative biofuel derived from its biomass can sequester the carbon dioxide and emit the oxygen which balances the environment is being considered as pilot fuel supplemented with 5% and 10% high energy gaseous hydrogen in a 4 S, 3.5 kW, constant speed, water-cooled, constant speed engine. Performance, combustion and exhaust out emissions were analysed. All precautionary steps involved in handling the gaseous hydrogen-like NFPA Class I Division 2 Group B standards were considered. 10% gaseous hydrogen supplemented Aleurites Fordii biodiesel shown better performance and reduction in emissions. Further, same results were compared with 90 °C preheated Aleurites Fordii straight vegetable oil, pure Aleurites Fordii biodiesel, 5% hydrogen supplemented Aleurites Fordii biodiesel and conventional petro-diesel operations.

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Aleurites Fordii; Straight vegetable oil; Biodiesel; Performance; Combustion and emissions

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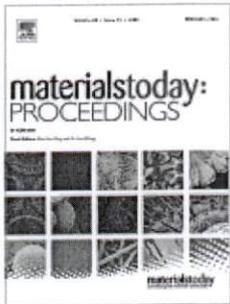
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A novel approach to find optimum group replacement period

Vinjamuri Venkata Kamesh ^a, D.V.S.S.S.V. Prasad ^b, P.S. Ranjit ^a, Bh Varaprasad ^a, V. Srinivasa Rao ^c

^a Mechanical Engineering, Aditya Engineering College(A), Surampalem 533437, Andhra Pradesh, India

^b Mechanical Engineering, Aditya College of Engineering, Surampalem 533437, Andhra Pradesh, India

^c Mechanical Engineering, Raghu Engineering College(A), Dakamarri, Visakhapatnam, Andhra Pradesh 531162, India

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Abstract

In the replacement of items that fail suddenly, it is always better to compare the replacement policy adopted whether it is with Pure individual replacement or Group replacement after optimum period. In pure individual policy, failed item is replaced immediately by procuring in the local available market spending the amount at market price. As the usage time increases, the rate of failure increases. In that case, the individual replacement cost always increase proportional to usage period. Replacing the total lot of items as a whole or lot is a better option to consider. In group replacement, lot is replacement at a specified period irrespective of the usage period and condition of the item. As the failure rate in the initial days of the usage period, item replacement cost in the individual replacement case as well as group replacement case is more or less in a narrow price region. We need to take a better decision by comparing Average cost in both the cases. In the present paper, a novel approach is proposed to minimize the number of steps to find the average cost using Table method. The proposed algorithm is programmed in EXCEL. The proposed algorithm can be extended for any number of periods of operation.

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Keywords

Replacement; Optimum period; Group replacement; Individual replacement; Number of items

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Use of Schleicheria Oleosa biodiesel blends with conventional diesel in a compression ignition engine – A feasibility assessment

P.S. Ranjit^a ✉, Swapnil Sureshchandra Bhurat^b, A. Saravanan^a, M. Murugan^c, Vinjamuri Venkata Kamesh^a, Pramod Kumar^c, Yashvir Singh^d, G. Sreeramulu Mahesh^e

- ^a Aditya Engineering College (A), Surampalem, India
- ^b University of Petroleum & Energy Studies (UPES), Dehradun, India
- ^c Aditya College of Engineering and Technology, Surampalem, India
- ^d Graphic Era University, Dehradun, India
- ^e Sri Venkateswara College of Engineering, Tirupati, India

Received 29 December 2020, Revised 19 January 2021, Accepted 4 February 2021, Available online 10 March 2021, Version of Record 23 September 2021.

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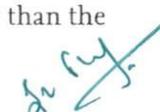
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Abstract

Unconditional extraction of fossil fuels on one side and exponential demand with minimum emissions makes the researchers think for alternative fuels. Schleicheria Oleosa is one such alternative fuel whose physicochemical properties are at par with conventional diesel and also having more than 40% saturated free fatty acids recommended to make use of its biodiesel blends 10% (SO BD10), 20% (SO BD20) and 30% (SO BD30) with conventional diesel. Moreover, tested these blends in a single cylinder, 4 stoke, 7.35 kW, 1000 rpm constant speed, water cooled, natural aspirated, vertical lister, oil engine for its feasibility. Performance parameters like brake thermal efficiency and brake specific energy consumption and emissions like NO_x, Smoke, CO and HC were examined. SO BD30 shown better performance at par with diesel operation when compared to all other blended environments. Performance parameters like: brake thermal efficiency of 28.90%, brake specific energy consumption of 12.45 MJ/kW-hr were recorded, which are near by the conventional diesel operation. With respect to emissions, oxides of Nitrogen of 462 ppm, Smoke with 32 HSU, Carbon Monoxide with 0.32% by volume and unburned Hydrocarbon of 8 ppm were measured. Oxides of Nitrogen was reduced when comparing to conventional diesel operation. Smoke was remain same, whereas carbon monoxide and unburned Hydrocarbons were slightly higher than the conventional petro-diesel operation.


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Keywords

Schleichera Oleosa; Biodiesel; Blends; Performance and emissions

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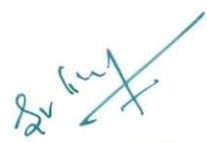
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Encapsulation of bioactive agent (Curcumin, Moringa) in electrospun nanofibers – Some insights into recent research trends

D. Sundhari ^a, N.R. Dhineshbabu ^b, S. Sutha ^c, M.E. Raja Saravanan ^d  

- ^a Department of Nanoscience and Technology, K. S. Rangasamy College of Technology, Tiruchengode, Tamil Nadu 637215, India
- ^b Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh 533437, India
- ^c Department of Electronics and Communication Engineering, Sri Venkateswara College of Engineering, Sriperumbudur, Tamil Nadu 602117, India
- ^d Department of Physics, Government Arts College (Autonomous), Salem 636011, India

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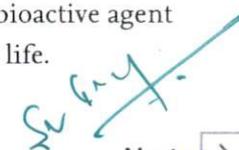
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Abstract

As the epidemic of coronavirus disease (COVID-19) has spread rapidly, health organizations around the world has made wearing face mask obligatory to prevent the spread of the infections for the wellness of the society. As wearing face masks become a daily routine, the usage of cloth facemasks from textile fabric, is popular among the public. Since antiquity, textiles have been proven to be intertwined with human lives and the integrant of these crucial materials are fibers. Particularly, nanofiber fabrics manufactured by electrospinning have attracted attention, owing to the better filtration efficiency and breathability. In addition, the electrospinning process provide opportunities to fine tuning of the surface functionality through polymer chemistry and an encapsulation of bioactive agents in single step process. This review opens up a new horizon in possible textile applications especially, an active layer of bioactive agent (Curcumin and Moringa) loaded nanofibrous fabrics-based facemasks for day to day life.

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2022, International Journal of Biomaterials

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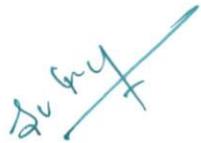
2021, Applied Sciences (Switzerland)

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A study of internet of things oriented smart medical systems

V. Kanchana ^a, Surendra Nath ^b, Mahesh K. Singh ^c ✉

^a U.G. Student, Department of ECE, Aditya College of Engineering and Technology, Surampalem, India

^b Assistant Professor, Department of ECE, Aditya College of Engineering and Technology, Surampalem, India

^c Adjunct Professor, Department of ECE, Aditya Engineering College, Surampalem, India

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<https://doi.org/10.1016/j.matpr.2021.06.363>

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Abstract

Aging populace ratios are increasing drastically. Health monitoring systems (HMS) based on IoT in smart environments have developed quickly to developed into a feasible substitute to conventional healthcare solution by using IoT. The major objective of HMS is not merely decreasing the expenditure but to also provided e-health service timely to persons. It is feasible when using IoT aspiration to preserve their self-determination. By this way, aged populace be able to avoid, for as extensive as achievable. In any communication by healthcare institution are connecting through internet as example hospitals and nursing homes. It is in turn to reduce the pressure on the health system. To completely realize this revelation of unspoiled IoT based e-health service sustaining the people in requirement of them. Quantities of challenge that require additional examination unmoving survive. At the conclusion, it is provided a summary of the existing condition for smart health monitor system by IoT. Here presented a combined image of the most significant function as well as services obtainable by HMS for the detecting and monitoring human behavior. It is counting its processing techniques, approaches and concepts etc. Furthermore, it is provided a general, in detail study and assessment of the obtainable research conclusion in the field of e-health systems through IoT.

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Keywords

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e-Health; Health-care; IoT health monitoring system; Emergency medical services; Sensor networks

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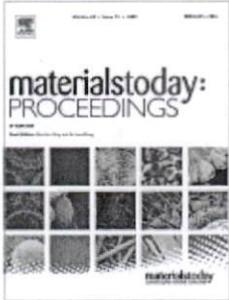
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Neuromorphic advancements architecture design and its implementations technique

V. Nithin Balaji ^a, P. Bala Srinivas ^a ✉, Mahesh K. Singh ^b ✉

^a Department of ECE, Aditya Engineering College, Surampalem, AP, India

^b Accendere Knowledge Management Services, New Delhi, India

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Abstract

Neuromorphic Architectures (NA) is hardware network systems which, designed on the principles of neural functions. The network systems are inspired from biological neural networks. Each node or neuron in the artificial Neural networks (ANN) are connected to each other using a synapse. Similar to the biological brains, the connection will be controlled with the amplitude of the connection between nodes, which termed as synaptic weights. Unlike in the conventional architecture, in ANNs consists of huge quantity of extremely organized dealing out elements operational in union to resolve the real world problems. NA is considered as the main soft-computing knowledge and has been widely researched. It is applied during last decades for the computational model. This paper basically focuses on the NA and neural networks and implementation. Neural network and machine learning algorithms are used by data classification in NA. This data will be provided a number of of the modern advancement, including super-computer, and single device implementations, approaches dependent on spiking and non-spiking neuron. Machine learning hardware devices are used to utilization of memristive device.

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Keywords

Neuromorphic architectures; ANN; Deep neural networks; Biological synapse; Computational model; Energy efficiency

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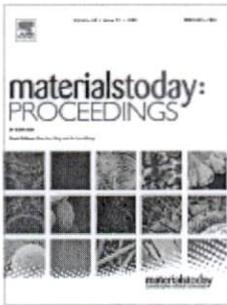


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Vehicle tracking and detection techniques using IoT

G. Punyavathi ^a, M. Neeladri ^a, Mahesh K Singh ^b

^a Department of ECE, Aditya Engineering College, Surampalem, AP, India

^b Accendere Knowledge Management Services, New Delhi, India

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Abstract

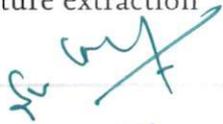
This manuscript focuses on the basic idea of vehicle detection techniques used for its detection. Here discussed the common idea for vehicle detection techniques that are used for different scenario. Traditional and modern methods that are used for vehicle detection method are explained. Statistic method is one of the traditional methods that are used for tracking of vehicles. Blob detection and its analysis is one of the processes in detecting vehicles. You only look once-v3 (YOLO-v3) is a detection method base on the idea of single shot detector (SSD) which is fully optimized and enhanced the exposure capability of small scale target objects. The results show that all the techniques can be used for detection but modern technique based on deep learning is more optimized and accurate. It is very necessary that great attention be paid to image and video recognition be paid to the efficiency of the device. It is difficult to locate and distinguish when flows are high. Using the principle of spatial consolidation, it then updates the network structure to enable real-time detection and statistical flow recalculation.

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Keywords

YOLOv3 mode; Traffic flow; Vehicle detection; Intelligent transportation; Feature extraction


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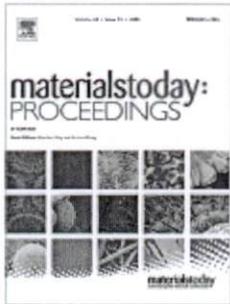
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Spliced images detection by using Viola-Jones algorithms method

G.V. Sai Prasanna ^a, K. Pavani ^a✉, Mahesh Kumar Singh ^b✉

^a Department of ECE, Aditya Engineering College, Surampalem, A.P., India

^b Accendere Knowledge Management Services, New Delhi, India

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Abstract

Photographs are measured to be a useful document that is used to stored life proceedings. The new progress in the representation of image expurgation software cause image operation. The additional and familiar image splicing, will not disappear with any illustration sign that having it interfered. Consequently, it turns complicated to identify whether the images are genuine or not. There are mostly three types of image forgery, these are image splicing, copy-move, and image retouching. There are dissimilar techniques accessible to ensure the dependability of the image. This manuscript proposed a **Viola-Jones algorithms** technique to detect the splice in images consisting of a human being. The primary stage, detected all the facts presented in the image then it is distorted addicted to dissimilar color spaces. Then it is used illuminant maps of every color space is achieved. Extracted the special feature for example quality of color and a number of the image classes are measured. The SVM classifier is used to detect whether the images are fake or real.

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Keywords

Image splicing; Face detection; Image quality measure; SVM classifier; Viola-Jones algorithms

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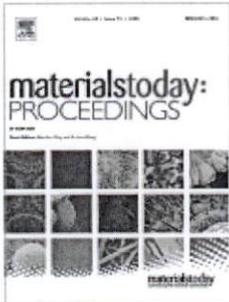


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Design and analysis simple microstrip low-pass filter for wireless application

G. Siva Naga Raju ^a, G. Jyothirmai ^a ✉, Sanjeev Kumar ^b ✉

^a ECE Department, Aditya Engineering College, Surampalem, A. P., India

^b Accendere Knowledge Management Services Pvt. Ltd, New-Delhi, India

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Abstract

In this article, high-performance compact defective ground technique based microstrip low-pass filter with and without dumbbell-shaped structure is proposed. By etching of dumbbell geometry on to ground plane, the presented filter gives a wideband operating frequency and sharp cut at stop band with high attenuation. The presented geometry is designed on software. The simulated outcomes shows that the presented low pass filter has very significant advantages in term of wide band stop band from 2.5 GHz to 6.6 GHz with the S_{21} much better than -35 dB and the presented LPF can meet the requirements of wireless communication systems and microwave applications with its stated efficiency.

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Keywords

Low-pass filter; Planar passive filters; Defected ground structure (DGS); Wireless communication

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Recognition of plant's leaf infection by image processing approach

Uppalapati Padma ^a, Samudrala Jagadish ^a, Mahesh K. Singh ^b

^a Department of ECE, Aditya Engineering College, Surampalem, A.P., India

^b Accendere Knowledge Management Services, New Delhi, India

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Abstract

Disease recognition in plants plays a vital role in agriculture applications. Having diseases in plants is a general fact. The detection of these diseases at the initial stage is very important to avoid loss in quality, quantity, and production in the crop. Manual detection of diseases in plants could not only be a time taking and costly process but also a difficult task in the case of large fields. The main objective of this research paper is to recognize and categorize the infection precisely from the folio descriptions. This step is compulsory in the improvements for training, pre-processing, and identification. The infections are measured by Downey Mildew and Powdery Mildew which can cause heavy loss to grapes fruit. For recognition of illness features of folio such as the main axis, small axis are removed from leaf and specified to classifier for identification. As a result, applied of the image processing method to come across and categorize the disease in the undeveloped application is helpful.

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Keywords

Plant disease; Disease diagnosis; Extraction; Image processing; Disease recognition; Segmentation


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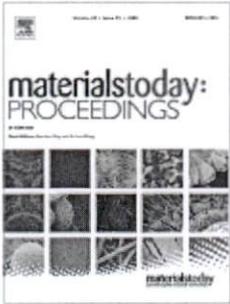
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Generation of square micropattern using electrochemical micromachining

S. Kunar  , R. Kumar, M.S. Reddy

Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

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Abstract

Surface microtexturing accomplishes a substantial role in enhancing the interfacial functional performance of machine-driven components. For producing good-quality square micropatterns, maskless electrochemical micromachining (EMM) is a viable option. Maskless EMM is employed for producing micropatterns, wherein the workpiece remains close by interaction with the mask tightly enclosed to the coated tool surface, and the electrolysis of job involves in the enclosed cell. The special micropatterning setup is developed to produce the good quality square micropatterns including micropatterning cell, pulsed electrical unit and perpendicular cross flow electrolyte system. The developed flow method on the job surface in this unit produces better good quality micropatterns. A reused textured tool and developed flow method is applied in maskless EMM in an enclosed unit, which eradicates the sludges and fabricate micropatterns with higher depth. This unique method is an efficient approach for improving the dimensional accuracy of micropatterns. The influences of input criteria, viz. voltage, duty ratio and frequency are studied on surface roughness, current efficiency, length overcut, and textured depth using this technique. The experimental outcomes show that the best parametric combination, viz. 30% duty ratio, 5 kHz frequency and 8 V voltage, enhances the micropatterned quality. A study has been approached based on micrographs for attaining the best input criteria combination.

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Maskless EMM; Microtextures; Square micropattern; Reused masked tool; Dimensional accuracy; Depth; Surface roughness

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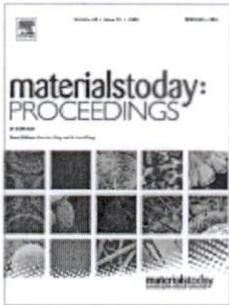


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Design of Unmanned Aerial Vehicles for various wireless applications

S. Bhanu Aktharun ^a, M.S.R. Sekhar ^b  

^a U. G. Student of ECE Department, Aditya Engineering College, Surampalem, AP, India

^b Faculty of ECE Department, Aditya Engineering College, Surampalem, AP, India

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Abstract

This paper will incorporate a survey of Unmanned Aerial Vehicle (UAV) and associated problems and present important challenges. Drones have attracted a lot of attention because of their innumerable applications as they are highly movable and provide applications such as service delivery, farming, pollution mitigation, rescue operations. Drones or Unmanned Aerial Vehicles (UAVs) which is one of the components of Unmanned Aerial System (UAS) are equipped with different IoT devices such as sensors, cameras, and actuators. They have a potential market because of their ubiquitous usability. They can be remotely controllable and regulating them in a well organized manner is a challenging task. Different communication technologies can be used such as Wi-Fi, WiMax, and Satellite Communication (SATCOM).

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UAV; IoT; Wi-Fi; Wi-Max; Drone

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EEOMA: End-to-end oriented management architecture for 6G-enabled drone communications

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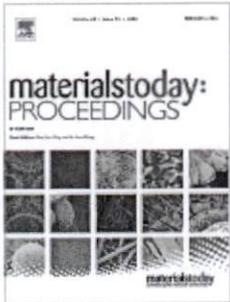
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Intensive analysis of intrusion detection methodology over Mobile Adhoc Network using machine learning strategies

M.V. Rajesh

Department of Computer Science, Aditya Engineering College, Surampalem, India

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Abstract

Mobile Adhoc Network (MANET) recently gained prominence due to the prevalence of handheld connectivity and their flexibility to supportability in specific non-permanent and instantaneous applications like floods and military situations. MANET offers great network utility, but comes with specific security challenges due to the fact that there is no central control, changing network topology, transient existence and uncoordinated communication. There are numerous proposals to use encryption and authentication measures to decrease the risk of security issues, especially as a first-line protection options. Although these risks cannot be removed entirely, an effective intrusion detection scheme is vital to keep unauthorized intrusion out of Mobile Adhoc Network. The role of intrusion identification on Mobile Adhoc Network is extremely difficult due to open medium, complex topology, dispersion, lack of centralized administration, and resource-constrained node groups. There is no direct analogue of a traditional intrusion detection system designed for Mobile AdHoc Networks Technology that can be used on the wireless network. The technology used in it must be flexible enough to accommodate ad hoc changes. This system implements new machine learning architecture that enhances detection to be much more. Intelligent Decision Support incorporates the high accuracy of Enhanced Support Vector Machine (eSVM) with the improved scalability of Rough Set Theory (RST).

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Keywords

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Mobile Adhoc Network; MANET; Machine learning; Intrusion detection; Rough set theory; RST; Enhanced support vector machine; eSVM

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Multivariable heuristic approach to intrusion detection in network environments

2021, Entropy



Dr M V Rajesh has 14 years of teaching and research experience. Presently, he is working as Associate Professor in Aditya Engineering College, Surampalem, Andhra Pradesh. He completed his research work in the area of Mobile Computing, especially in the scope of MANETS and obtained Doctorate degree from JNTU Kakinada. He has 10 national and international reputed journals in his credit. Now he is switched for advanced mode of applying machine learning techniques in his earlier work.

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Mechanical properties of 304 stainless steel plates and friction stir welded Al 2219 alloy

Selvakumaran Thunaipragasam ^a✉, Gururaj Hatti ^b✉, R. Dhanaraj ^c✉, R. Giri Prasad ^d✉, P. Satheesh Kumar ^e✉, M. Saravanan ^f✉, S. Rajkumar ^g✉

^a Department of Aerospace Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai 603203, Tamilnadu, India

^b Department of Mechanical Engineering, KLS Vishwanathrao Deshpande Institute of Technology - [VDIT], Haliyal 581329, Karnataka, India

^c Department of Mechanical Engineering, Rajalakshmi Engineering College, Chennai 602105, Tamilnadu, India

^d Department of Petroleum Technology, Aditya Engineering College, Surampalem 533437, E.G Dt., Andhra Pradesh, India

^e Department of Chemistry, Dr.N.G.P Institute of Technology, Coimbatore 641048, Tamilnadu, India

^f Department of Mechanical Engineering, Panimalar Engineering College, Nazarethpet, Chennai 600125, Tamilnadu, India

^g Department of Mechanical Engineering, Faculty of Manufacturing, Institute of Technology, Hawassa University, Ethiopia

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The study examined the impact of different operating conditions of 2219 aluminium (Al) sheets and 304 stainless steel FSW. Recently, the FSW procedure has been utilised to fastening various materials as it was able for conventional fusion welding techniques to remove local casting errors. The microstructure and mechanical characteristics of the weld nugget depend primarily on several FSW parameters such as rotation of the instrument, feeding speed, offset and pin profile. The current paper examines and discusses the effects of instrument speed, feed rate, offset and the cleaning process for tensile behaviour. As demonstrated by the decrease in velocity from 710 to 500 rpm and the increase in feed rate from 40 to 80 mm/min, the joint was improved. Furthermore, by raising offset to 1.5 mm, the defect in the twisted area was reduced. The use of the ringing method also successfully enhanced the extension and tensile strength by 100% and 9%.

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Keywords

FSW; Dissimilar materials joint; Al2219 Alloy; 304 stainless steels; Annealing; Weld nugget

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Sustainable utilization of waste slag aggregates as replacement of coarse aggregates in concrete

Sumit Choudhary^a  , P. Ravi Kishore^a, S. Pachaiappan^a

^a Aditya Engineering College, Surampalem 533437, India

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Abstract

The current study mainly aims on the usage of waste coarse slag aggregates (CSA) to prepare coarse slag aggregate concrete (CSAC). The waste slag aggregates are the by-products mainly obtained from the iron and steel industries. These wastes are mostly disposed off into the landfills and the newer alternative method of disposing are being researched. Also, the increasing rate of construction has resulted into the diminishing of natural raw materials. The present paper focuses on incorporating CSA as the replacement of 20 mm natural coarse aggregates to prepare CSAC for various volumetric replacement of 20%, 40%, 60%, 80% and 100%. Cube and beam samples having different percentages of CSA were casted to undergo the experimental analysis. The fresh, mechanical and durability parameters has been studied by performing workability, density, compressive strength, split tensile strength, ultrasonic pulse velocity, water absorption and water permeability tests, for the in-depth analysis. The outcomes from the experiments has shown decrease in the strength and durability properties for increasing count of CSA. Decrease in compressive and split tensile strength of 39.08% and 37.50% respectively was observed for 100% CSA replacement. In case of durability properties, the penetration depth has increased up to 69.84% for the 100% CA replacement sample. However, a very marginal decrease in the values were observed for the replacement content up to 40%. The study concluded that the utilization of slag aggregate is a sustainable approach by preserving the naturally available raw materials and also construction can be made economical.

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Coarse slag aggregate concrete; Waste slag aggregates; Mechanical properties; Durability properties

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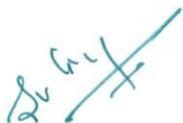
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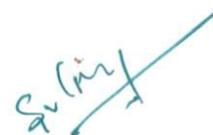
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Cognitive OFDM-NOMA System: A succinct Study

Chavatapalli Tarun Vamsi Krishna¹, Chandana Mani Deepika¹, B.S. Saranya¹ and Murrey Neeladri¹

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Journal of Physics: Conference Series, Volume 1714, 2nd International Conference on Smart and Intelligent Learning for Information Optimization (CONSILIO) 2020 24-25 October 2020, Goa, India

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tkvamsi12@gmail.com

deepikasrinivas3@gmail.com

saranya.bs@gmail.com

neeladri.m@aec.edu.in

¹ Department of ECE, Aditya engineering college, Surampalem, India

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Integration of non-orthogonal and orthogonal multiplexing used to enhance the capacity of the system is presented here. This is also called as cognitive OFDM- NOMA. Here we overcome some problems which are divided into sub problems i.e., the power allocation optimization, user scheduling and sensing duration, respectively. Orthogonal frequency division multiplexing (OFDM) for multiusers can also be done by clustering based radio allocation (RA) scheme. This will improve maximum usage of wireless communications by optimizing the sum capacity of secondary users. The users in same group have the same OFDM sub channels to enhance spectrum utilization.

Mobile networks have used time/frequency/code domain for multiple access, while in NOMA the power domain will be used.

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Study on Power Minimization techniques in SAR ADC Devices by Using Comparators Circuits

P. Divya Sree¹, B. Jyothsna Raj¹ and B. Srinivas¹

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sreedivya836@gmail.com

jyothsna busi123@gmail.com

srinivas.budaraju@aec.edu.in

¹ Department of ECE, Aditya Engineering College Surampalem, AP, India<https://doi.org/10.1088/1742-6596/1714/1/012043>

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Abstract

Comparators play an important role in designing of SAR ADC. In this paper we achieve the required performance of SAR ADC at minimum power usage. Using of comparators will reduce the power and noise, Dynamic latch circuit used in comparator increases the speed. The differential amplifier is also discussed. Here we will get to know about Ramp ADC and also about various DAC's like M-DAC and AUX-DAC. The time-interleaving technique is the design technique that is used to increase the speed.

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Study of Echo Cancellation approach by using Least Mean Square (LMS) Algorithm

I. PavanKalyan¹, G. Jaya Santosh¹, K.H.K. Prasad¹ and Durgesh Nandan¹

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pavanisukapati@gmail.com

gjsantosh29@gmail.com

prasad.khk@aec.edu.in

durgeshnandano51@gmail.com

¹ Department of ECE, Aditya Engineering College, Surampalem, India

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Sound is the origin of communication. We are using sound channel for interaction. The acoustic signal introduces echo signal properties which lead the original signal as error signal. In most of applications the adaptive filters implemented in time domain works quite efficiently. However, the complication of the adaptive filter increases as the impulsive reaction becomes quite large hence it cannot be implemented efficiently in time domain. Acoustic echo cancellation is one example where this can happen. In this paper we will explain about to acoustic cancellation and different methods

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Study on Energy Reduction Techniques in STT-RAM

Vura Sai Durga Eswar¹, K Devi Bhavani¹ and Durgesh Nandan²

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vuraeswar1999@gmail.com

devibhavani.k@aec.edu.in

durgeshnandano51@gmail.com

¹ Department of ECE, Aditya Engineering College, Surampalem, AP, India

² Accendere Knowledge Management Services Pvt. Ltd., CL Educate Ltd., New Delhi, India

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Spin Transfer Torque Random Access Memory (STT-RAM) is suitable to be considered for central memory. In STT-RAM the altercative period of attractive burrowing intersection is exchanged by the showing up of turn enraptured current over the intersection and it appear to be the most preparing elective with the more thickness and low introduction power, one of the major test for STT-RAM is the more write current, this paper proposes dual source write assist circuit method to reduce the equal compose vitality that prompts a diminishing in power utilization and the limit voltage of dynamic transistor to rising temperature. The MTJ temperature will increase than the

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Power Efficient Bit Lines: A Succinct Study

J. Bhaskara Veeraveni¹ and K. Devi Bhawani¹

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jonnalaveeraveni16@gmail.com

devibhawani.k@aec.edu.in

¹ Department of ECE, Aditya engineering college, Surampalem, India

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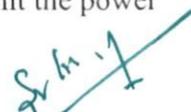
Reducing the consumption of power in VLSI circuits is challenging. A low power circuit in multi-port memories for power consumption reduction in bit lines is presented here. In this circuit the power of wide gates used in memory bit lines is decreased by reducing the voltage swing of the pull-down network. Wide gates were simulated and the results showed 40% lower power consumption. Processors are another component where power dissipation is high. Various methods are used to decrease the power dissipation. A number of methods reduce bus transitions to limit the power dissipation.

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A Review on Image Processing Sensor

M.V.V. RadhaKrishna¹, M. Venkata Govindh¹ and P. Krishna Veni¹

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krishnamuthyala053@gmail.com

balumylapally@gmail.com

krishnaveni.p@aec.edu.in

¹ Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, AP, India

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Abstract

Image sensors are used in all digital cameras, mobile phones and all other devices where images are to be captured. The most common parameter used by consumers to compare the different cameras is the pixel array size which is usually given in Mega pixels. The image quality is better with a higher megapixel count. Another parameter to distinguish between the different cameras is the type of imaging technology used like CMOS (Complementary metal oxide semiconductor) or CCD (Charge coupled devices). In this review we will present the working principles of an image sensor and conversion of light to electrical signals and subsequently to an image. The functional differences between the CCD and CMOS sensors will also be presented.

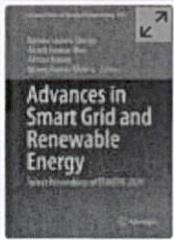
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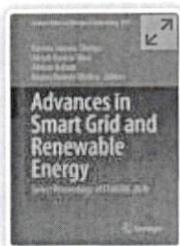
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International Conference on Emerging Trends and Advances in Electrical Engineering and Renewable Energy

ETAERE 2020, ETAERE 2020: Advances in Smart Grid and Renewable Energy pp 249–256

● Analysis of Received Signal Strength Based on User Position Locating by Using ML Methods

L. Sathish, Y. Satya Bhuvaneshwari, B. Satya Sri Devi & Durgesh Nandan 

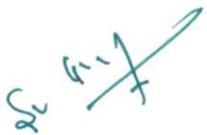
Conference paper | First Online: 05 January 2021

252 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 691)

● Abstract

In this paper, we study an administered AI calculation approach dependent on Gaussian procedure regression (GP) to limit clients in a disseminated enormous numerous information various yield multi-input multi-output (DM-MIMO) framework from their uplink got received signal strength (RSS). The prepared machine learning calculation with the commotion free RSS information and utilizing this prepared calculation to gauge the client areas from their loud RSS. In


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Author information

Authors and Affiliations

● **Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, India**

L. Sathish, Y. Satya Bhuvaneshwari & B. Satya Sri Devi
Accendere Knowledge Management Services Pvt. Ltd., CL Educate Ltd., New Delhi, India

Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information

Editors and Affiliations

● **Sikkim Manipal University, Gangtok, Sikkim, India**

Prof. Dr. Karma Sonam Sherpa

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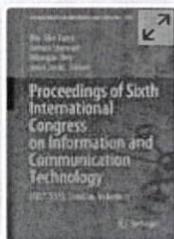
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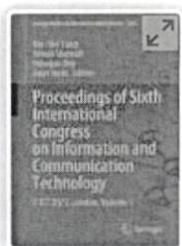
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Proceedings of Sixth International Congress on Information and Communication Technology pp 555–567

Design and Implementation of an Efficient IIR Filter Architecture Using Merged Delay Transformation

[P. Bujjibabu](#) , [M. Kamaraju](#) & [K. Babulu](#)

Conference paper | First Online: [10 September 2021](#)

414 Accesses | 1 Citations

Part of the [Lecture Notes in Networks and Systems](#) book series (LNNS, volume 216)

Abstract

Signal transformation is such an essential function in modern applications. The filter is a vital element in signal processing for conversion and is designed with effective functioning and efficient naturally. Indeed, a filter design must ensure less area and the least power consumption. One can also reduce the hardware complexity and achieve a much better critical path delay by using infinite impulsive response (IIR) instead of finite impulsive response (FIR) filters. IIR filters are superior to FIR filters to a keep flat frequency phase response for all sample rates. From an area point of view, the existing IIR decimation filter implementation method is not up


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Gudlalleru, ApplyVolt, Vijayawada for their timely help and permission to utilize the Tools to carry out the experimentation with MATLAB Simulink/System Generator, in concluding these outcomes.

Author information

Authors and Affiliations

**Aditya Engineering College (A), Aditya Nagar,
ADB Road, Surampalem, Andhra Pradesh,
533437, India**

● P. Bujjibabu

**Gudlalleru Engineering College, Seshadri Rao
Knowledge Village, Gudlalleru, Krishna (dt),
Andhra Pradesh, 521356, India**

M. Kamaraju

**JNTUV, Kakinada, Dwarapudi, Vizianagaram,
Andhra Pradesh, 535 003, India**

K. Babulu

Corresponding author

● Correspondence to P. Bujjibabu.

Editor information

Editors and Affiliations

Middlesex University, London, UK

Dr. Xin-She Yang

The University of Reading, Reading, UK

Dr. Simon Sherratt

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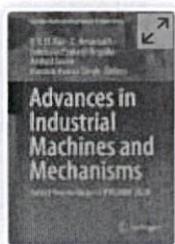
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Advances in Industrial Machines and Mechanisms pp 219–227

Improved Design and Development of Crop Conveying Mechanism in Reaper Machine

Anand Kumar Jangir, Narendra Achera, Saurav Khandelwal, Chirag Gupta, Himanshu Chaudhary & N. R. N. V. Gowripathi Rao

Conference paper | First Online: 21 July 2021

443 Accesses

Part of the Lecture Notes in Mechanical Engineering book series (LNME)

Abstract

Mechanization of agriculture plays an important role for improved crop productivity. In harvesting, machines reaper is used to harvest wheat crops. In the existing machines, there is a need to improve the crop conveying mechanism which can also uplift the slant crops occurred due to wind and nature occurring problems. Thus, in this paper, an improved mechanism is proposed which can contribute to increase the efficiency of the machine. Kinematic analysis is also performed to validate and compare the experimental to design data. Torque

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Author information

Authors and Affiliations

**Malaviya National Institute of Technology
Jaipur, Rajasthan, 302017, India**

Anand Kumar Jangir, Narendra Achera, Saurav
Khandelwal, Chirag Gupta & Himanshu Chaudhary

Aditya Engineering College, Surampalem,

Andhra Pradesh, 533437, India

N. R. N. V. Gowripathi Rao

Editor information


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SURAMPALEM - 533 437**

Editors and Affiliations

**Department of Mechanical Engineering, Birla
Institute of Technology and Science, Pilani-
Hyderabad Campus, Hyderabad, Telangana,
India**

Prof. Y. V. D. Rao

**Department of Mechanical Engineering, Indian
Institute of Technology Bombay, Mumbai,
Maharashtra, India**

Prof. Dr. C. Amarnath

**Department of Mechanical Engineering, Birla
Institute of Technology and Science, Pilani-
Hyderabad Campus, Hyderabad, Telangana,
India**

Prof. Srinivasa Prakash Regalla

**Department of Mechanical Engineering, Birla
Institute of Technology and Science, Pilani-
Hyderabad Campus, Hyderabad, Telangana,
India**

Prof. Dr. Arshad Javed

**Department of Mechanical Engineering, Birla
Institute of Technology and Science, Pilani-
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Advanced Informatics for Computing Research

4th International Conference, **ICAICR 2020**, Gurugram, India, December 26–27, 2020, Revised Selected Papers, Part I

Editors: [Ashish Kumar Luhach](#), [Dharm Singh Jat](#), [Kamarul Hawari Bin Ghazali](#), [Xiao-Zhi Gao](#), [Pawan Lingras](#)

Part of the book series: [Communications in Computer and Information Science](#) (CCIS, volume 1393)

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International Conference on Advanced Informatics for Computing Research

ICAICR 2020: Advanced Informatics for Computing Research pp 62–70

Cancer Prediction Using Novel Ranking Algorithms and Machine Learning

A. Lakshmanarao, A. Srisaila & T. Srinivasa Ravi Kiran

Conference paper | First Online: 20 June 2021

472 Accesses

Part of the Communications in Computer and Information Science book series (CCIS, volume 1393)

Abstract

Cancer is the second leading cause of death globally. Especially, breast cancer is the most problematic cancer with more death rates. In this paper, we proposed a novel fusion classifier model based on a combination of various machine learning algorithms to improve accuracy. First, the base level models are trained and then we applied a ranking based algorithms for predicting final accuracy. The proposed model is tested on two different cancer datasets from UCI, Kaggle repository. The experimental results on two different datasets shown the effectiveness of the


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Mihai, I.C., Hsiung, P.A., Mishra, R.B. (eds)
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Author information

Authors and Affiliations

**Department of IT, Aditya Engineering College,
Surampalem, A.P, India**

A. Lakshmanarao

**Department of Information Technology, V.R
Siddhartha Engineering College, Vijayawada,
Andhra Pradesh, India**

A. Srisaila

**Department of Computer Science,
P.B.Siddhartha College of Arts and Science,
Vijayawada, Andhra Pradesh, India**

T. Srinivasa Ravi Kiran

Editor information

Editors and Affiliations



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**Papua New Guinea University of Technology,
Lae, Papua New Guinea**

Ashish Kumar Luhach

**Namibia University of Science and Technology,
Windhoek, Namibia**

Prof. Dharm Singh Jat

**Universiti Malaysia Pahang, Pekan, Pahang,
Malaysia**

Prof. Kamarul Hawari Bin Ghazali

University of Eastern Finland, Kuopio, Finland

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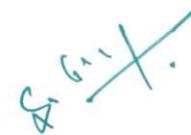
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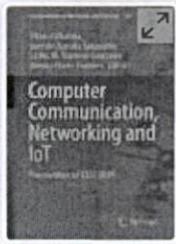
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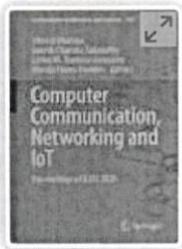
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Computer Communication, Networking and IoT pp 147–153

Finding MST by Considering Increasing Cost Order of the Edges Incident on Vertices

Rayudu Srinivas , R. V. S. Lalitha, T. Rama Reddy & B. Durga Anuja

Conference paper | First Online: 19 June 2021

303 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 197)

Abstract

Finding a minimum cost spanning tree (MST) plays a key role in many applications. For a given graph $G(V, E)$, there may be more than one spanning tree (ST) that can be constructed, but out of all these STs, the ST which has least cost edges is called MST. Finding MST in linear time is important. In this paper, a novel approach is proposed to find MST. The approach used in finding the MST is based on the selection of vertices and least cost edge incident on that vertices. The approach proposed is simple and easy to implement. The time complexity of this algorithm is $O(n \log n)$.

S. V. S. /

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-

Author information

Authors and Affiliations

**Aditya Engineering College, Surampalem,
Andhra Pradesh, India**

● Rayudu Srinivas & T. Rama Reddy

**Aditya College of Engineering and Technology,
Surampalem, India**

R. V. S. Lalitha

**Govt. Degree College for Womens Srikalahasti,
SriKalahasti, Andhra Pradesh, India**

B. Durga Anuja

Corresponding author

Correspondence to [Rayudu Srinivas](#).

● Editor information

Editors and Affiliations

**Department of Electronics and Communication
Engineering, Shri Ramswaroop Memorial Group
of Professional Colleges (SRMGPC), Lucknow,
Uttar Pradesh, India**

Dr. Vikrant Bhateja

**School of Computer Engineering, Kalinga
Institute of Industrial Technology, Bhubaneswar,
India**

Rayudu

**PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALM**

Dr. Suresh Chandra Satapathy

**Department of Signals and Communication,
Institute for Technological Development, Las
Palmas de Gran Canaria, Spain**

Prof. Dr. Carlos M. Travieso-Gonzalez

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de Baja California, Mexicali, Baja California,
Mexico**

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Computer Communication, Networking and IoT pp 85–91

A Novel Approach to Find Minimum Cost Spanning Tree (MST) of a Graph

● [Rayudu Srinivas](#) , [T. Rama Reddy](#), [R. V. S. Lalitha](#) & [Shaik Vahida](#)

Conference paper | First Online: [19 June 2021](#)

306 Accesses

Part of the [Lecture Notes in Networks and Systems](#) book series (LNNS, volume 197)

Abstract

● Finding minimum cost spanning tree plays a major role in many applications like transportation, communication, network, design of computer, etc. There are a number of algorithms proposed in literature but popularly used algorithms are Prim's and Kruskal's algorithms. The time complexity of these algorithms is not linear, so still finding MST in linear time is open to do research. These algorithms require the edges of the graph in sorted order. In this paper, a novel approach is proposed to find the MST for given graph which processes the edges based on levels of the graph. This proposed method requires level-wise sorted order of edges.


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-

Author information

Authors and Affiliations

**Aditya Engineering College, Surampalem,
Andhra Pradesh, India**

Rayudu Srinivas & T. Rama Reddy

● **Aditya College of Engineering and Technology,
Surampalem, India**

R. V. S. Lalitha & Shaik Vahida

Corresponding author

Correspondence to [Rayudu Srinivas](#).

Editor information

Editors and Affiliations

● **Department of Electronics and Communication
Engineering, Shri Ramswaroop Memorial Group
of Professional Colleges (SRMGPC), Lucknow,
Uttar Pradesh, India**

Dr. Vikrant Bhateja

**School of Computer Engineering, Kalinga
Institute of Industrial Technology, Bhubaneswar,
India**

Dr. Suresh Chandra Satapathy

**Department of Signals and Communication,
Institute for Technological Development, Las
Palmas de Gran Canaria, Spain**

S. S. S.
PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

Prof. Dr. Carlos M. Travieso-Gonzalez
**Faculty of Engineering, Universidad Autónoma
de Baja California, Mexicali, Baja California,
Mexico**

Dr. Wendy Flores-Fuentes

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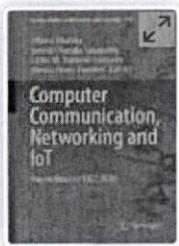
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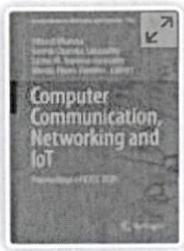
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Computer Communication, Networking and IoT pp 329–337

Self-automated Fault Diagnosis System for Internal Combustion Engines

Nitla Stanley Ebenezer, Abdul khurshid, **K. Anjani Devi**,
Chodiseti Naga Sandeep, Penke Pragnana Manipal,
Gorthi Siva Vijay & Thotakura Sri Satya Dhanesh

Conference paper | First Online: **19 June 2021**

313 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 197)

Abstract

A heat engine often coined as a system transmutes thermic and chemic energies to mechanical energy. The current review employs a traditional heat engine, i.e., an internal combustion engine, where a self-automated optimization technique is incorporated for determining best optimal parameters and for diagnosing the flaws thereby enhancing the overall efficacy. Several difficulties are witnessed during the effective functioning of an IC engine which eventually roots to multiple energy losses leading to the fatigue failure of the entire


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**Department of Mechanical Engineering, Aditya
College of Engineering and Technology
Surampalem, Kakinada, Andhra Pradesh,
533437, India**

Nitla Stanley Ebenezer, Chodiseti Naga
Sandeep, Penke Pragnana Manipal, Gorthi Siva
Vijay & Thotakura Sri Satya Dhanesh

**Department of Mechanical Engineering, JNTUK
University College of Engineering,
Vizianagaram, Andhra Pradesh, 535003, India**

Abdul khurshid

**Department of Physics, Computer Science and
Engineering, Aditya Engineering College
Surampalem, Kakinada, Andhra Pradesh,
533437, India**

K. Anjani Devi

Editor information

Editors and Affiliations

**Department of Electronics and Communication
Engineering, Shri Ramswaroop Memorial Group
of Professional Colleges (SRMGPC), Lucknow,
Uttar Pradesh, India**

Dr. Vikrant Bhateja

**School of Computer Engineering, Kalinga
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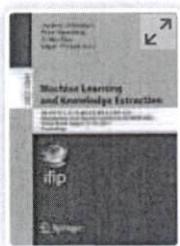
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5th IFIP TC 5, TC 12, WG 8.4, WG 8.9, WG 12.9 International Cross-Domain Conference, **CD-MAKE 2021**, Virtual Event, August 17–20, 2021, Proceedings

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International Cross-Domain Conference for Machine Learning and Knowledge Extraction

CD-MAKE 2021: Machine Learning and Knowledge Extraction pp 51–60

Text2PyCode: Machine Translation of Natural Language Intent to Python Source Code

Sridevi Bonthu, S. Rama Sree & M. H. M. Krishna Prasad

Conference paper | First Online: 10 August 2021

716 Accesses

Part of the Lecture Notes in Computer Science book series (LNISA, volume 12844)

Abstract

Natural Language Processing has improved tremendously with the success of Deep Learning. Neural Machine Translation (NMT) has arisen as the most powerful with the power of Deep Learning. The same idea has been recently applied to source code. Code Generation (CG) is the task of generating source code from natural language input. This paper introduces a Python parallel corpus of natural language intent and source code pairs. It also proposes a Code Generation model based on Transformer architecture used for NMT by using code tokenization and code embeddings on the custom parallel corpus. The proposed


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-

Author information

Authors and Affiliations

**Vishnu Institute of Technology, Bhimavaram,
Andhra Pradesh, India**

Sridevi Bonthu

**Aditya Engineering College, Surampalem,
Andhra Pradesh, India**

S. Rama Sree

**Jawaharlal Nehru Technological University,
Kakinada, Andhra Pradesh, India**

Sridevi Bonthu & M. H. M. Krishna Prasad

Editor information

Editors and Affiliations

**Institute for Medical Informatics, Statistics and
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Andreas Holzinger


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**St. Pölten University of Applied Sciences, St.
Pölten, Austria**

Peter Kieseberg

**Institute of Software Technology and Interactive
Systems, Technische Universität Wien, Vienna,
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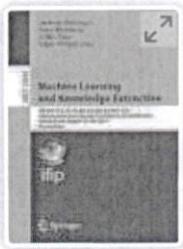
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International Cross-Domain Conference for Machine Learning and Knowledge Extraction

CD-MAKE 2021: Machine Learning and Knowledge Extraction pp 61–78

Automated Short Answer Grading Using Deep Learning: A Survey

Sridevi Bonthu, S. Rama Sree & M. H. M. Krishna Prasad

Conference paper | First Online: 10 August 2021

871 Accesses

Part of the Lecture Notes in Computer Science book series (LNISA, volume 12844)

Abstract

Automated Short Answer Grading (ASAG) is the task of assessing short answers authored by students by leveraging computational methods. The task of ASAG is investigated for many years, but this task continues to draw attention because of the associated research challenges. One of the core constraints of ASAG is the limited availability of domain-relevant training data. The task of ASAG can be tackled with several approaches and they can be broadly categorized into the traditional approaches based on handcrafted features and the Deep Learning based approaches. Researchers are applying Deep Learning Approaches for the past five years to address this problem owing to the



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Author information

Authors and Affiliations

**Vishnu Institute of Technology, Bhimavaram,
Andhra Pradesh, India**

Sridevi Bonthu

**Aditya Engineering College, Surampalem,
Andhra Pradesh, India**

S. Rama Sree

**Jawaharlal Nehru Technological University,
Kakinada, Kakinada, Andhra Pradesh, India**

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Editors and Affiliations

Institute for Medical Informatics, Statistics and Documentation and Institute for Information Systems and Computer Media, Medical University Graz and Graz University of Technology, Graz, Austria

Andreas Holzinger

St. Pölten University of Applied Sciences, St. Pölten, Austria

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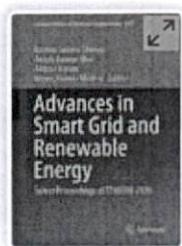
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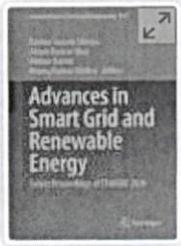
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ETAERE 2020, ETAERE 2020: **Advances in Smart Grid and Renewable Energy** pp 349–358

● A Review of Diverse Procedure for Extraction of Fetal ECG

K. M. L. Narasimhulu , **N. Murali**, **M. Girish Kumar**, **T. Srinivasa Rao** & **Durgesh Nandan** 

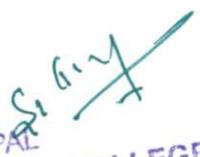
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Abstract

This paper emphasized the fetal ECG by conducting different methods to the observed maternal ECG. So that the heart conditions are depended on fetal, during the early stages of pregnancy and during birth. Here, using only non-invasive method proposed for reducing the harm for the fetal and mother. If it is using non-invasive method inserted some components into the mother, it will be only used during the labor. So, this is the best method to use non-invasive and get the fetal in ECG. Non-invasive methods for fetal's feature extraction are


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Author information

Authors and Affiliations

**Department of E.C.E, Aditya Engineering
College, Surampalem, Andhra Pradesh, India**

K. M. L. Narasimhulu, N. Murali, M. Girish

Kumar & T. Srinivasa Rao

**Accendere Knowledge Management Services
Pvt. Ltd, CL Educate Ltd, New-Delhi, India**

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Subh

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Correspondence to K. M. L. Narasimhulu or
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Editor information

Editors and Affiliations

**Sikkim Manipal University, Gangtok, Sikkim,
India**

Prof. Dr. Karma Sonam Sherpa

**Department of Electrical and Electronics
Engineering, Sikkim Manipal Institute of
Technology, Rangpo, Sikkim, India**

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Prof. Akhtar Kalam

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Computer Networks and Inventive Communication Technologies pp
907–913

Shape and Texture Features Extraction Using Segmented Histopathological Images

U. Rajyalakshmi, K. Satya Prasad & S. Koteswara Rao

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Abstract

For women, breast cancer occupies the second position in causing the occurrence as well as mortality. Optimum segmentation and feature extraction play a crucial role while categorizing medical images. The proposed paper integrates marker-based watershed approach with K-means clustering data for optimum segmentation. It deals with detail component protection. The work focus on feature extraction from the segmented histopathological images. Feature selection is necessary for minimizing the redundant parameters. Optimum features necessary for image

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Author information

Authors and Affiliations

**Electronics and Communications Engineering
Department, Aditya Engineering College (A),
Surampalem, 533437, India**

U. Rajyalakshmi

**Electronics and Communications Engineering
Department, Vignan's Foundation for Science,
Technology and Research (Deemed to Be
University), Vadlamudi, Guntur, 522213, India**

K. Satya Prasad

**Electronics and Communications Engineering
Department, KL University, Vijayawada, 522502,
India**

S. Koteswara Rao

S. Koteswara Rao
PRINCIPAL
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Editor information

Editors and Affiliations

**Department of Computer Science and
Engineering, RVS Technical Campus,
Coimbatore, India**

Dr. S. Smys

**Gerald Schwartz School of Business, St. Francis
Xavier University, Antigonish, India**

Dr. Ram Palanisamy

University of Lisbon, Lisbon, Portugal

Dr. Álvaro Rocha

**Department of Business Administration of Food
and Agricultural Enterprises, Agrinio Campus,
University of Patras, Patras, Greece**

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Data Engineering and Communication Technology pp 113–122

Privacy by Design Approach for Vehicular Tripdata Using k -Anonymity Perturbation

[Nanna Babu Palla](#) , [B. Kameswara Rao](#), [Kaladi Govinda Raju](#) & [A. Vinaya Babu](#)

Conference paper | [First Online: 24 May 2021](#)

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Part of the [Lecture Notes on Data Engineering and Communications Technologies](#) book series (LNDECT, volume 63)

Abstract

Vehicular communication in intelligent transport system offers data dissemination among vehicles in rapid transmission of road incident log to trusted entities. The adversary attacks having background knowledge are often a side effect due to re-identity and linkage attacks by innocuous public data sharing provisions. The proposed work spotlight on attacks with background knowledge who attempts to extract individual's data using high end data extraction algorithms by linking with the vehicular trip database. Enhancing location privacy and


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Author information

Authors and Affiliations

**Department of CSE, Aditya Engineering College,
Surampalem, India**

Nanna Babu Palla & Kaladi Govinda Raju


**PRINCIPAL
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SURAMPALEM - 533 437**

**Department of CSE, Aditya Institute of
Technology and Management, Tekkali, India**

B. Kameswara Rao

**Stanley College of Engg. & Technology,
Hyderabad, India**

A. Vinaya Babu

Corresponding author

Correspondence to Nanna Babu Palla.

Editor information

Editors and Affiliations

**Kakatiya Institute of Technology and Science,
Warangal, Telangana, India**

Dr. K. Ashoka Reddy

**Department of Electronics and Communication
Engineering, Kakatiya Institute of Technology
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Intelligent Computing in Control and Communication pp 117–126

Adiabatic Logic-Based Area- and Energy-Efficient Full Adder Design

Krishna Saladi  & **B. Leela Kumari**

Conference paper | First Online: **05 January 2021**

265 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 702)

Abstract

Low energy- and area-efficient digital circuit design is unique among the significant navigational challenges of digital VLSI design suitable for real-time applications. Full adders are essential functional elements in complex arithmetic circuits; a 1-bit adder is developed by using adiabatic logic in this operation to get low power consumption. The intended 1-bit adder cell with adiabatic logic results in very less heat dissipation with its surrounding circuit atmosphere. As a result, this logic has minimal energy loss due to overheating dissipation. The proposed adiabatic logic circuit is compared with CMOS and pass transistor logic (PTL) with TG 1-bit adder topologies. The results show that there


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Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College,

Surampalem, Andhra Pradesh, 533437, India

Krishna Saladi

Department of ECE, JNTU Kakinada, Kakinada,

Andhra Pradesh, 533003, India

Krishna Saladi & B. Leela Kumari

Corresponding author

Correspondence to [Krishna Saladi](#).

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Editors and Affiliations


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ADITYA ENGINEERING COLLEGE
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**Department of Electrical and Electronics
Engineering, Sri Sivani College of Engineering
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Dr. G.T. Chandra Sekhar

**Department of Information Technology, Veer
Surendra Sai University of Technology, Burla,
Odisha, India**

Dr. H. S. Behera

**Department of Computer Science and
Engineering, Aditya Institute of Technology and
Management (AITAM), Srikakulam, Andhra
Pradesh, India**

Dr. Janmenjoy Nayak

**Department of Computer Application, Veer
Surendra Sai University of Technology, Burla,
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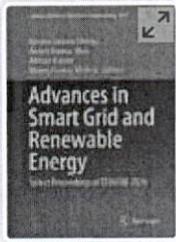
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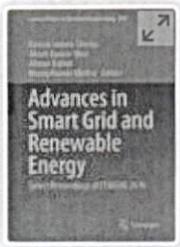
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ETAERE 2020, ETAERE 2020: Advances in Smart Grid and Renewable Energy pp 257–266

Analysis of Quadcopter Technology as an Emergency Service

Prasanthi Magapu , Sarthika Danthuluri, Vidheya Raju Boni & Durgesh Nandan

Conference paper | First Online: 05 January 2021

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Abstract

Due to the traffic jam and due to the delay of the ambulance to the emergency area, many people died and still dying to date. Currently, this is a major problem. When there is no chance of saving lives due to the mentioned problems, there the usage of technology plays a major role. As many technologies are being developed day to day, Unmanned Aerial Vehicle (UAV) is one of the best technologies. The quadcopter technology with Global positioning system is the best way to reach the accident place in an emergency. The drone is


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Prasanthi Magapu, Sarthika Danthuluri & Vidheya
Raju Boni

**Accendere Knowledge Management Services
Pvt. Ltd., New Delhi, India**

Durgesh Nandan

Corresponding author

Correspondence to Prasanthi Magapu.

Editor information

Editors and Affiliations

**Sikkim Manipal University, Gangtok, Sikkim,
India**

Prof. Dr. Karma Sonam Sherpa

**Department of Electrical and Electronics
Engineering, Sikkim Manipal Institute of
Technology, Rangpo, Sikkim, India**

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Intelligent Computing in Control and Communication pp 127–133

Comparative Analysis of Rapid Single Flux Quantum (RSFQ) Circuit Technique Multipliers

[Yamini Devi Ykuntam](#)  & [Katta Pavani](#)

Conference paper | First Online: 05 January 2021

299 Accesses

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Abstract

The primary operation of any processor is to perform basic arithmetic operations. In all basic arithmetic operations, multiplication consumes more time to be performed. Multiplier is the component which performs the multiplication operation. Its performance speed is going to affect the speed of the entire processing unit. The major operation of multiplier is to generate final product from partial products. To perform this major operation, the required architecture may require more area which intends to increase in latency in operation. In order to improve the performance of processor with minimum area, fast multiplier must


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Author information

Authors and Affiliations

Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, 533437, India

Yamini Devi Ykuntam & Katta Pavani

Corresponding author

Correspondence to Yamini Devi Ykuntam.

Editor information

Editors and Affiliations

Department of Electrical and Electronics Engineering, Sri Sivani College of Engineering (SSCE), Srikakulam, Andhra Pradesh, India


**PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALAM - 533 437**

Dr. G.T. Chandra Sekhar

**Department of Information Technology, Veer
Surendra Sai University of Technology, Burla,
Odisha, India**

Dr. H. S. Behera

**Department of Computer Science and
Engineering, Aditya Institute of Technology and
Management (AITAM), Srikakulam, Andhra
Pradesh, India**

Dr. Janmenjoy Nayak

**Department of Computer Application, Veer
Surendra Sai University of Technology, Burla,
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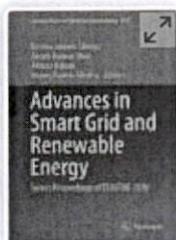
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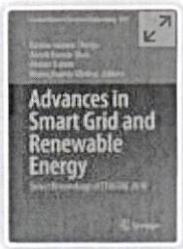
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ETAERE 2020, ETAERE 2020: **Advances in Smart Grid and Renewable Energy** pp 321–328

● Error Correction Code: Study, Challenges, and Applications

V. Vydehi, A. Lishitha, G. Pranathi, N. V. Satyanarayana & Durgesh Nandan 

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262 Accesses

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● Abstract

This abstract states that there is a chance of occurrence of an error during the transmission of the signal through a channel and while these errors can be a single bit or multiple bits. During these space applications, it is observed that we have to consider various parameters like power, area, and delay. Various codes are compared for the error correction codes. These codes can also manage and even enhance error in memory coverage in accordance with the Matrix and CLC codes. In space applications, there is a chance of occurrence of


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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, Andhra Pradesh, India**

V. Vydehi, A. Lishitha, G. Pranathi & N. V.

Satyanarayana

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Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).

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**Sikkim Manipal University, Gangtok, Sikkim,
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Prof. Dr. Karma Sonam Sherpa

**Department of Electrical and Electronics
Engineering, Sikkim Manipal Institute of
Technology, Rangpo, Sikkim, India**

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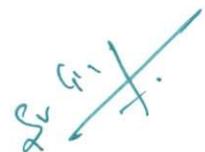
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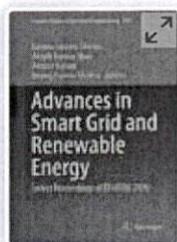
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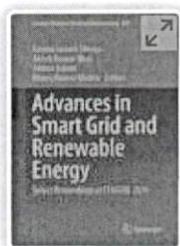
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● Review on Different Types of Multipliers and Its Performance Comparisons

[Bocha Dileep Venkata Prasad](#), [Nalla Satya Sai Sanjeev](#),
[Krishna Saladi](#) & [Durgesh Nandan](#) 

Conference paper | First Online: 05 January 2021

351 Accesses

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● Abstract

Multipliers are mainly used in digital signal processing (DSP) applications. The multiplier is the most popular one out of all existing arithmetic operations. It is used to perform the multiplication between two numbers in different types of approaches. Mainly the multiplier focuses on the four aspects to form an efficient multiplier, i.e., speed, power consumption, area, and accuracy. In this article, it covers all existing popular multipliers like booth, array, Wallace tree, sequential,


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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

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Sanjeev & Krishna Saladi

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Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).



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Editors and Affiliations

**Sikkim Manipal University, Gangtok, Sikkim,
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Prof. Dr. Karma Sonam Sherpa

**Department of Electrical and Electronics
Engineering, Sikkim Manipal Institute of
Technology, Rangpo, Sikkim, India**

Prof. Dr. Akash Kumar Bhoi

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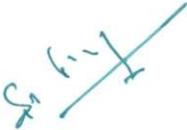
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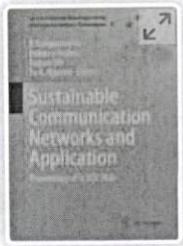
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Sustainable Communication Networks and Application pp 643–654

An Efficient Energy Management of Hybrid Renewable Energy Sources Based Smart-Grid System Using an IEPC Technique

K. Bapayya Naidu , B. Rajani, A. Ramesh & K. V. S. R. Murthy

Conference paper | First Online: 26 January 2021

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Abstract

In this paper, a grid-connected microgrid (MG) is proposed to find energy scheduling for optimal energy management. Here, the MG system has a photovoltaic system, wind turbine, battery storage (BS), as well as microturbine (MT). An improved emperor penguin colony (IEPC) technique can continuously track the necessary load demand of the MG system connected to the grid. Here, the huddling behavior of EPC is improved by crossover and mutation operator. The goal of the IEPC


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12. Wang, H.: Sustainable development and management in consumer electronics using soft computation. J. Soft Comput. Paradigm (JSCP) **1**(01), 56 (2019)

Author information

Authors and Affiliations

Department of Electrical and Electronics, Aditya Engineering College, Surampalem, Andhra Pradesh, 533437, India

K. Bapayya Naidu & K. V. S. R. Murthy

Department of Electrical and Electronics, Aditya College of Engineering and Technology, Surampalem, Andhra Pradesh, 533437, India

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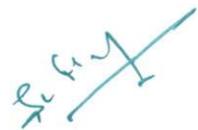
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A. Ramesh

Corresponding author

Correspondence to K. Bapayya Naidu.

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Abstract: Copy Move Forgery Detection (CMFD) is helpful to detect copied and pasted areas in one image, it plays a crucial role in legal evidence, forensic investigation and in many more places. In this paper, CMFD method is proposed using Steerable Pyramid Transform (SPT), Grey Level Co-occurrence Matrix (GLCM) and Optimized Naive Bayes Classifier (ONBC). The suspected image is given to SPT to obtain different orientations, from all suspected image orientations GLCM features are extracted. These features are used to train ONBC as well as to classify ONBC. Wide range of tests conducted on CoMoFoD, MICC_F and CASIA v1.0 databases using proposed algorithm and performance is measured in terms TPR and FNR. It shows robustness over existing algorithms in the literature even the forged image has undergone many attacks.

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S.B.G. Tilak Babu
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Department of ECE, JNTUK UCEV, Vizianagaram, Andhra Pradesh, India

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I. Introduction and State of Art

With the rapid advancement of image processing technologies, modifying a digital image becomes simpler even for an amateur forger with the help of some easy-to-use photo editing software, like Adobe Photoshop and Gimp. Copy Move Forgery (CMF) is one of the growing falsifications among different digital image falsifications. CMF happens in a single image, where part of the photo page is replicated and pasted in a separate location. Since the duplicates are created inside the image, the noise structure, the dynamic range, texture and so on will be appropriate in the context of the remaining portion of the picture and this will be more difficult to detect falsification. Many researchers reported on CMFD [1] [2] but they have their own limitations.

Authors

S.B.G. Tilak Babu
Department of ECE, Aditya Engineering College, Surampalem, JNTU
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Department of ECE, JNTUK UCEV, Vizianagaram, Andhra Pradesh, India

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Abstract:

Major operation block in any processing unit is a multiplier. There are many multiplication algorithms are proposed, by using which multiplier structure can be designed. Among various multiplication algorithms, Wallace tree multiplication algorithm is beneficial in terms of speed of operation. With the advancement of technology, demand for circuits with high speed and low area is increasing. In order to improve the speed of Wallace tree multiplier without degrading its area parameter, a new structure of Wallace tree multiplier is proposed in this paper. In the proposed structure, the final addition stage of partial products is performed by parallel prefix adders (PPAs). In this paper, five Wallace tree multiplier structures are proposed using Kogge stone adder, Sklansky adder, Brent Kung adder, Ladner Fischer adder and Han carlson adder. All the multiplier structures are designed using Verilog HDL in Xilinx 13.2 design suite. The proposed structures are simulated using ISIM simulator and synthesized using XST synthesizer. The proposed designs are analyzed with respect to traditional multiplier design in terms of area (No. of LUTs) and delay (ns).

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Yamini devi Ykuntam
Department of ECE, Aditya Engineering college, Surampalem, India

Katta Pavani
Department of ECE, Aditya Engineering college, Surampalem, India

Krishna Saladi
Department of ECE, Aditya Engineering college, Surampalem, India

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I. Introduction

At present, the technology is advancing very rapidly in very short duration of time. The circuits being design have some billions of components with low area, high speed and low power consumption. Hence area, speed and power plays crucial role in the design of any circuit [1], [2]. In order to satisfy the current trend demand a circuit must be designed with low area and less delay constraints. Arithmetic units are major blocks in any processing units which perform various arithmetic operations [3]. Multiplication operation is important among all arithmetic operations. Several multiplication algorithms are studied in literature survey of multiplier designs like Binary multiplier, array multiplier, Booth's multiplier, Dadda multiplier, Wallace tree multiplier [4]. Wallace tree multiplier is advantageous in different types of multipliers[5].

Authors

Yamini devi Ykuntam
Department of ECE, Aditya Engineering college, Surampalem, India

Katta Pavani
Department of ECE, Aditya Engineering college, Surampalem, India

Krishna Saladi
Department of ECE, Aditya Engineering college, Surampalem, India

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B. Rajani

Department of Electrical and Electronics Engineering, Aditya College of
Engineering & Technology, Surampalem, Andhra Pradesh, India

K Bapayya Naidu

Department of Electrical and Electronics Engineering, Aditya Engineering
College, Surampalem, Andhra Pradesh, India

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I. Introduction

In future generations, there will be a large shift of power generation from non-renewable sources (like diesel generators, coal plants) to renewable sources (like PVA, wind farms, biogas) for clean and green power generation to reduce global warming. The utilization of renewable sources [1] in parallel is a greater challenge as the power generated by these sources are different types (AC or DC) and also are variable for ambient and environmental changes. This makes it difficult to stabilize the power output from these sources and more difficult to make them operate in parallel with power-sharing. To do these different types of power electronic converters are used interconnecting the source and grid to Point of Common Coupling (PCC). The converters may include AC-DC or DCDC or DC-AC converters, [4] depending on the type of grid considered. For our analysis, a DC microgrid is considered with PVA, battery and supercapacitor [8] as renewable sources to operate a BLDC motor used for water pumping application. In older technologies, AC microgrid is utilized which includes grid interconnection. The renewable sources connected to AC microgrid share power along with the conventional source for reliable power-sharing and support to the load in any environmental conditions. The AC microgrid includes many power electronic converters to make the sources operate in synchronization with the grid. These converters need complex control structures with feedback from the grid voltage and current. This increases the losses in the system increases the complexity of the modules, and reduces of the complete system Figure 1 depicts an AC microgrid with multiple renewable sources connected in parallel with the grid.

Authors ^

B. Rajani

Department of Electrical and Electronics Engineering, Aditya College of
Engineering & Technology, Surampalem, Andhra Pradesh, India

K Bapayya Naidu

Department of Electrical and Electronics Engineering, Aditya Engineering
College, Surampalem, Andhra Pradesh, India

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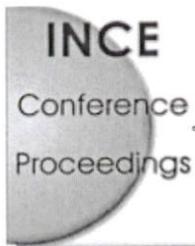
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Acoustics has become fundamental in daily life of human beings. There is increasing in demand for ambient noise control. Hence, there is lot of research marketed in producing good sound absorbing materials meeting to the needs. But, the testing setup for acoustic material property determination is distantly located and costlier in several instances. There is great deal of adequacy to build testing chambers with less space and cost. The present work is intended to build a low cost reverberation chamber for measurement of sound transmission loss coefficient (STC). It consists of two 5 m³ small chambers with base and ceiling in pentagonal shape and inclined to each other. All the walls of both the chambers are constructed in such a way that no two walls are parallel to each other and fully reflective. This is to ensure complete sound diffusivity inside both the chambers. The corners of the chambers are sealed with acoustic sealant and wall panels are separated using neoprene rubber sheets to avoid any air leaks. The chambers are isolated from the ground using nylon wheels to avoid ground vibration transmissions. The chambers are made up of teak wood frames and are treated with glass wool of density 50kg/m and 50 mm thick and covered with plywood sheets which acts like walls. The outer layer of the plywood sheet is covered with fully reflective acrylic sheet. In order to ensure the correctness of measurements as per ASTM E90, Sound diffusivity measurement, Reverberation time measurement as per ASTM C423, Field transmission loss measurement as per ASTM E336 and flanking transmission loss measurement are performed. Measurements made using the twin reverberation chamber adhere to ISO 10140-2:2010 and ISO 101420-4:2010. Samples of size 2' x 2' for various thickness can be tested using the chambers. From the microphones data and using Sabine's equation the sound absorption coefficient is determined. The sound transmission loss coefficient is determined as per ASTM E90 procedure. The results from the constructed reverberation chamber are verified with standard samples.

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Suggestions

Recycling of E-waste is most viable and sustainable solution for handling environmental pollution which is a major requirement. Surface mounted boards (SMB) comprises of various materials such as Metals and Nonmetals. These boards are considered for E-waste study and this waste after crushing and sieving is used as a partial replacement of sand in cement and fly ash brick manufacturing. In which, sieved surface mounted boards waste in different percentages ranging from 0%, 5%, 10%, 20% & 25% is used as replacement of sand. Along with these, 3% polypropylene is also used to enhance the compressive strength by maintaining mixture ratio of 1:3 (cement: sand). Compressive strength after 28 days is measured and noticed that addition of 3% polypropylene resulted in increase of compressive strength in the compositions of 0% & 5% SMB sieve but in later compositions its effect is not much seen. Sound absorption coefficient is measured for these samples using two microphone impedance tube test-setup with plane wave excitation as per ISO 10534:2 to determine acoustics properties.

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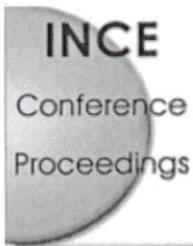
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Abstract



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Supplementary Data

Meta-materials designed purposefully to reduce broad band noise which is not attainable by natural materials. Basically these are artificial materials. These materials definition is not specific. These exhibit properties which are not available in constituent materials. Properties are derived from physical structure not from their chemistry. Sometimes these are perceived as composites purposefully designed to reduce noise. Existing techniques are filtering, dampening using resonators, muffling can only control certain range of frequencies of broad band i.e. 20Hz-20 KHz but where as in case of Meta materials these can control any range of frequency because of their peculiar property. Performance of existing techniques is low also. Design and development of meta materials is the current work which focus on making different physical structures of specific material and testing for noise level reduction. Iterating on different structures of same material is the concept of Meta material. These materials have now overturned in all views of conventional aspects of sound propagation and manipulation. Performance of cavity acoustics used for broad band noise reduction is to be improved and innovation is required to do such work. Meta materials can be the replacement for the need. These materials can considerably reduce noise with same weight of material which is used in existing technique. Design of Meta material include repeating regular physical structure pattern for the whole component. When sound waves pass through specific structural pattern different frequencies are absorbed which is covering whole range. Where as in case of regular techniques only specific frequency is absorbed. In case of development of Meta material different manufacturing techniques are adopted such as moulding, proto typing etc.

Document Type: Research Article

Affiliations: 1: Jawaharlal Nehru Technological University Kakinada 2: Aditya Engineering College

Publication date: 12 October 2020

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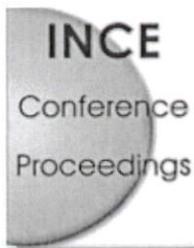
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Publisher: Institute of Noise Control Engineering



Abstract



References



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Suggestions

Natural fibre composites are getting attention in noise reduction applications replacing conventional materials. They are being used in passive noise control in which jute is showing its prominence. Though conventional sound absorbing materials are used for passive control, they can be replaced by natural fibres as they are abundantly available and are in expensive. The present work is to test samples prepared from various jute materials with epoxy resin as bonding agent. Jute materials used for study are jute mats 190GSM, 420GSM and felt woven jute composite. Plain jute mat samples are designated as JM composites and samples prepared in combination of jute mat and felt woven jute are designated as JMW. The sound absorbing coefficient study is carried out experimentally using two microphone impedance tube test set up as per ISO 10534-2. Sound absorption comparative studies are carried out on perforated samples and sandwiched samples with air partition. It is observed that layered felt woven jute composites are having higher sound absorption coefficient than jute mat composites when several combinations of these are analysed. This might be due to felt woven jute composites are having lesser density. Maximum noise reduction coefficient of 0.97 at 1250 Hz and 0.96 at 622 Hz 1/3rd octave band frequency is obtained for 190GSM and 420GSM layered felt woven jute composites respectively. The highest NRC recorded among other samples prepared to improve sound absorption coefficient is found to be 0.93 at 922Hz 1/3rd octave band frequency with 10mm air gap and without perforations. The above value recorded for the sample of thickness 20mm, which is prepared with 190HSM jute mat and felt woven jute. A comparison is also established between composite samples and glass wool for thickness of 50mm. In comparison between 190GSM and 420GSM samples, it is advisable to choose 420GSM samples. 420GSM samples are having better bonding and are performing well in low frequency band.

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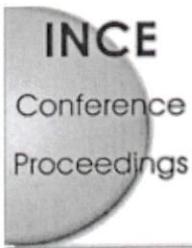
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Supplementary Data

Suggestions

Helmholtz resonators (HRs) and Quarter wave tubes are used in acoustic cavities for low frequency noise reduction. The focus of this paper is to enhance the noise control inside an acoustic cavity using mis-tuned resonators and quarter wave tubes. A non-parallel pentagonal room with rigid wall boundary is considered as acoustic cavity. The acoustic cavity mode frequencies and detuned modes of the resonator and quarter wave tube are calculated using 3D finite element method using commercial software ANSYS and few results are validated using experiments. The analysis is carried out by coupling each of the resonators and tubes to fundamental cavity mode and its split mode, higher order modes of acoustic cavity and their split modes. Similarly, to higher amplitude modes and their split modes. Later, a combination of resonators and tubes tuned to low and medium frequencies are embedded in polyurethane foam and are analysed by coupling to the acoustic cavity. The results shows that the amount of noise reduction inside the coupled acoustic cavity is more when multiple resonators and quarter wave tubes which are tuned to various higher amplitude modes of cavity and their split modes. The noise reduction further enhanced when these are embedded inside PU foam. The analysis also shows the amount of noise reduction inside acoustic cavity depends on the coupling of several of these components tuned to various higher amplitude cavity and split mode frequencies. This study provided a solution to the suppression of split mode frequencies, an unwanted noise that is generated in resonator coupling. The results are verified over various cavity geometries and few are validated using experiments.

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Due to easy detection of contact based devices, color-markers or 3D cameras, state-of-art gesture models mostly employs them to make the gesture. Yet, their lack of user-friendliness limits their use in practical scenarios. Use of barehand to make a gesture, however, comes naturally to the user. However, computer-vision based bare-hand detection is a challenging task, affected by multiple environmental factors. Feature based object detection techniques are easy and robust solution to detection under various non-ideal conditions. In this study, an extensive comprehensive study is carried between two purely spectral (color) features and fourteen color-texture features. Models are developed and compared for different image sizes. The Classification models are developed using Naive Bayes classifier (Probabilistic view), Euclidean distance and Chebyshev distance models (Proximity view) and Real AdaBoost classifier. Experimental results showed that only 2 out of the 16 proposed features has performance less than 90% for hand detection under noisy conditions.

Published in: 2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT)

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 Department of ECE, Aditya Engineering College, Surampalem, A.P., India

Conference Location: Kharagpur,
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K. V. Paluri
 Department of ECE, Aditya Engineering College, Surampalem, A.P., India

R. H. Laskar
 Department of ECE, NIT Silchar, Silchar, Assam, India

Contents

1. Introduction

Human visual system can easily classify objects even after huge intra-class variability and other external variability (presence of car in a crowded place irrespective of its view point change w.r.t. camera). Present work focuses in the development of a feature based system which can provide human vision to computers for detecting bare hand amidst above mentioned environmental and intra-class variations. Vision based systems are evolving as the burning topic of research due to their easiness, lesser computational complexity, and minimal cost. Singha and Laskar in [1], Singha et al. [2], and Misra et al. [3] have developed vision based systems using color-marker as the gesturing device. Correct detection of color-markers are affected by the presence of any imposter markers in the background of the video. Singha et al. [4] have also developed a bare-hand based gesture recognition system, where skin filtering methods and motion detection (three frame differencing) are integrated together to detect the barehand. The three frame differencing is motivated from two frame differencing process used in [5] for hand tracking, assuming that the background is static. The factors which effects the 2D detection of bare-hand are, lack of depth information, human hand shape that creates large within-class variation, skin color variation, uneven lightening, complex background, and occlusion. For initial motivation, 400 test images are fed in system [4] to observe its efficiency. The images are corrupted by positional variation, uneven illumination, and complex background. The experimental analysis showed that the integrated skin-filtering method is not adequate to handle the nonideal conditions and therefore failed detect hands corrupted with uneven illumination, change in appearance, etc. Some of the falsely detected hands using system [4] is shown in Fig. 1. box shows the detected hand and red lines shows the actual hand to be detected. Fig. 1.

Failure of existing system [4] in detecting hands. (a) Hand is under ideal condition. (b), (c), (d), (e), (f) shows hands affected by variations such as positions, illumination, rotation, scale, and complex background, respectively. Yellow bounding

Authors

Songhita Misra
 Department of ECE, Aditya Engineering College, Surampalem, A.P., India

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Published: 2012

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2018 European Control Conference (ECC)
Published: 2018

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Abstract: The most encouraging use of solar energy is its conversion into electrical energy by using solar photovoltaic (PV) panel. The performance of solar-based PV panel is undoubtedly influenced by the quantity of solar radiation, which is reaching on the panel surface. The occurrence of shading over the panel surface is a vital environmental phenomenon which affects the penetration of solar radiation to reach the overall surface area of photovoltaic cells. The shading on PV panels may happen due to trees, the formation of mists, accumulation of dirt elements on the panel surface, close by long-standing structures, shadows of different panels in its region, neighbouring structures and so on. This paper is mainly focused on the study of shading impact on the panel performance. Further, this paper also observed the influence of shading on the variation of surface temperature of the PV panel. The present study shown a significant reduction of 41.40% in the maximum power output (Pmax) of the panel due to 25% shading strength of the single cell in the panel. Moreover, it was also observed that the increase in the percentage shading strength over the panel surface shifts the maximum power point (MPP), of the panel characteristics, towards the lower output voltage, which affects the effective operation of the charge controller. Further, it was seen that the shading impact degrades the performance of the panel as well as in charge of the rise of the surface temperature of the panel. In the present investigation, it was

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observed that the temperature of the unshaded cell rises at the rate of 1.753%, due to the shading phenomena over the panel surface.

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Abhishek Kumar Tripathi

Department of Mining Engineering, Aditya Engineering College (A),
Surampalem, A.P., India

Mangalpady Aruna

Department of Mining Engineering, National Institute of Technology Karnataka,
Surathkal, India

Shashwati Ray

Department of Electrical Engineering, B.I.T. Durg Bhillai, Chhatisgarh, India

Satyajeet Parida

Department of Mining Engineering, Aditya Engineering College (A),
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I. Introduction

Due to continuous growth in the population and energy demand, it is necessary to find alternate ways of energy generation. In this regard, solar energy (alternative source of energy) could play a vital role. The usage of this alternative energy is capable of reducing the carbon foot print and as a result of this the environmental pollution can be minimized. The usage of solar energy for the generation of electric power not only reduce the carbon footprint but also helps in providing the electric power at remote location. Solar energy is the energy which is coming from the sun in the form of light and heat [1]. In the solar energy system, the conversion of solar power into electrical power is possible with the help of photovoltaic panels. The PV panels are typically made up of silicon semiconductors [2]. Photovoltaic is a technology in which the light energy (in the form of sunlight) is converted into electrical energy. In this technology, whenever the sunlight falls on the cell surface, it excites the electrons of the valence band and these excited electron leaves the valence band in order to enter in the conduction band [3]. Due to this the generation of hole in the valence band occurs and as a result of this photo current starts flowing in the circuit [4]. This generated photo (electric) current by photovoltaic effect is strongly dependent on the incoming solar radiation.

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abhishekkumar@aec.edu.in

sandeep0908024@gmail.com

shashwatiray@yahoo.com

¹ Assistant Professor, Department of Mining Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

² Assistant Professor, Department of Mining Engineering, A.K.S. University, Satna, India

³ Professor, Department of Electrical Engineering, Bhilai Institute of Technology, Durg, Chhattisgarh, India

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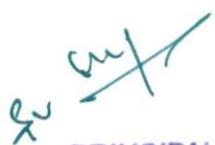
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The generation of electric power through solar photovoltaic panel is highly sensitive towards its operating environment. Dust is one of the important operating parameters which affect the performance of photovoltaic panel. The aim of this study is to understand the effect of dust mass deposition on the output power of the solar photovoltaic panel. In order to conduct this study a field collected coal dust was used in different mass on the surface of photovoltaic panel and its output


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In this paper, digital control of a DC-DC switching power converter using a Field Programmable Gate Array (FPGA) is presented. The FPGA system development is carried out using Very High-Speed Integrated Circuit Hardware Description Language (VHDL), whose parameters can be easily changed as per user requirement by editing the predefined generics in the VHDL code. The digital controller comprises of Xilinx Analog to Digital Converter(XADC) and Xilinx Microblaze soft processor core. The digital controller developed using the FPGA development board has been tested on classical synchronous buck and boost converter operating in continuous conduction mode (CCM).

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I. Introduction

DC-DC converter finds widespread application in a variety of applications where regulated power supply is required. The traditional approach to control the DC-DC converter is to implement a proportional-integral and derivative (PID) type controller along with a pulse-width modulator (PWM) unit. The main challenges of designing a controller for power converters are (a) manage the input and output energy, (b) offer higher precision, resolution, and (c) decrease cost. The hardware implementation of the controller is most important to achieve the goals mentioned earlier. The computational power and flexibility of controllers need to be tapped to achieve the overall objectives. The most common processors used in real-time embedded control for industrial applications are ASIC, microcontrollers, DSPs, and FPGA. Each of the processors has its advantages as well as disadvantages [1]. Conventionally Application Specific Integrated Circuit (ASIC) based analog controllers were used for controlling the DC-DC converter. Though ASIC provides much higher bandwidth for a controller, there are some inherent limitations in ASIC design. The limitations are (a) a larger number of passive, active components and other associated parts, (b) poor computational ability, (c) aging of components, and component performance are dependent on temperature and (d) difficult to reconfigure. To counter these limitations of ASIC based implementation, power electronics design professionals are adopting digital controllers. The digital controller is of an obvious choice because of several features such as lower power consumption, immune to any variation in analog components, and aging of components, reprogrammable, and compact size [2]. Digital controllers are often built using software programmed microprocessor units. In this approach, the processor executes a series of instructions to perform the desired computation. The main feature of the software-based approach is that logic computation can be changed without changing the hardware. The limitation of such an approach is the clock speed of the processor. Reconfigurable computation fills the gap between ASIC based approach and software-based approach by providing a higher degree of flexibility in both hardware as well as software level. In Ref. [3], the authors have outlined the comparison of the implementation of PID controllers using FPGA based multiprocessor system-on-chip (MPSOC) and multi-core microcontrollers (MCUs). The processors are used to develop hardware-in-loop (HIL) simulations. The digital controller improves the dynamic response of the DC-DC converter. Using a digital controller, different adaptive and soft-computing based controllers can be implemented, which further improves the steady-state as well as transient state response of the converter [4]–[7]. One of the widely used reconfigurable devices is a field-programmable gate array (FPGA). FPGA fabric contains three major components, such as combinational logic, interconnect, and I/O pins [8]. FPGA based design provides many advantages over hardware and software-based approaches such as higher

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Bidyadhar Subudhi
School of Electrical Sciences, IIT Goa, Goa, India

Pravat Ray
Dept. of Electrical Engineering, NIT Rourkela, Rourkela, India

Subhransu Padhee
Dept. of Electrical Engg., Aditya Engineering College, Andhra Pradesh, India

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I. Introduction

Synchronized phasor measurement units (PMU) provide current, voltage, and phase angle measurements of an extensive power system synchronized with time (μ s accuracy). The timestamped information on the phase is called synchrophasor. The time synchronization is made possible with the advent of global positioning system (GPS) and sampled data processing techniques. The data is digitized, PMU readings are transmitted to a phasor data concentrator (PDC) or vector preprocessor through a high-speed communication network [1]. With rapidly developing technology, PMU technology has seen rapid progress, and several standards and calibration procedures are defined by the IEEE and National Institute of Standards and Technology (NIST) [2].

Authors

Debashish Mohapatra
Dept. of Electrical Engineering, NIT Rourkela, Rourkela, India

Bidyadhar Subudhi
School of Electrical Sciences, IIT Goa, Goa, India

Pravat Ray
Dept. of Electrical Engineering, NIT Rourkela, Rourkela, India

Subhransu Padhee
Dept. of Electrical Engg., Aditya Engineering College, Andhra Pradesh, India

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- III. Proposed Method
- IV. Error Analysis, Synthesis Results, and Comparisons
- V. Conclusions

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Abstract: In numerous applications, the utilization of logarithm multiplier becoming popular due to hardware efficiency and errorless design. In logarithm multiplier, an error created at the time of logarithm and antilogarithm conversion. Various designs for error correction circuits are available in the market which promises to make antilogarithm conversion efficient but there is scope to make it accurate and fast. In this article, we proposed the compact and errorless 16-region error correction scheme for antilogarithm converter which gives better results in terms of hardware overhead as well as accuracy as compared to the reported literature. By using the proposed method, it makes logarithm multiplier efficient, more accurate and more use full for signal, image and speech processing applications.

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Durgesh Nandan
E.C.E., Aditya Engineering College, Andhra Pradesh, India

Kaushal Kumar
E.C.E., National Institute of Technology, Patna, Bihar, India

Jitendra Kanungo
E.C.E., Jaypee University of Engineering Technology, Guna, M.P., India

Ritesh Kumar Mishra
E.C.E., National Institute of Technology, Patna, Bihar, India

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I. Introduction

All of the computer arithmetic, multiplier design is the most demanding and area thirsty research area [1]. Due to that reason, a lot of research happens to make multipliers more accurate and efficient. In the last decades, the logarithm-based multiplier has gained significant attention for compact and accurate hardware architecture of Digital Signal Processing (DSP), Field Programmable Gate Array (FPGA)-mapping of speech processing algorithm, Image processing, and Machine learning algorithms [2]–[4]. When, around us, we look to observe that in daily life the electronic gadgets like signal processing devices, embedded and Internet on Things (IoT) devices are essential parts. All battery and power operated hand-held portable devices which are used in our day to day life requires efficient, errorless and low power arithmetic operations [1]–[11]. As it is a well-known fact that real-time signal processing applications required efficient and accurate hardware architecture to perform well. At filtering operations mainly arithmetic calculations are to be performed. Out of all arithmetic components, multiplication consumes 60% hardware and power approximately. A lot of research efforts have been directed in the past 60 years to design an efficient and accurate multiplier according to product requirements. Especially, FIR, FFT and DCT techniques want an efficient multiplier design for performing well. But the multiplication process has always area thirsty. Logarithm operation provides the solution to this problem. A simple pictorial representation of logarithmic based multiplication is represented in Figure 1. It shows that logarithm-based multiplications can be performed by using three steps. At first binary inputs, get converted into logarithm by using Binary to Logarithm (B to L) converter. In the second step, all logarithm value gets added by using standard arithmetic. At last, added logarithm value gets converted into the binary value by using Logarithm to Binary (B to L) converter also known as antilogarithm converter. Many researchers proposed many methods regarding the logarithmic and antilogarithmic conversions in recent years. The way of implementing logarithmic and antilogarithmic converters mainly decides the hardware architecture, accuracy, and performance [12]–[14]. So, an efficient and accurate binary to logarithmic and vice-versa converter need to make arithmetic operation speedy with

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B. Annapurna¹, T Rama Reddy², Ch. V. Raghavendran³, Raushan Kumar Singh⁴ and Vedurai Veera Prasad⁵

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annapurnagandrey@gmail.com

¹ Associate Professor, Department of Computer Science and Engineering, Aditya College of Engineering, Surampalem, East Godavari Dt., AP, India.

² Professor, Department of Computer Science and Engineering, Aditya Engineering College (A), Surampalem, East Godavari Dt., AP, India

³ Professor, Department of Information Technology, Aditya College of Engineering and Technology, Surampalem, East Godavari Dt., AP, India

⁴ Technical Director, Spectrum Solutions, Pondicherry, India

⁵ Assistant Professor Department of Computer Science and Engineering, Aditya College of Engineering, Surampalem, East Godavari Dt., AP, India.

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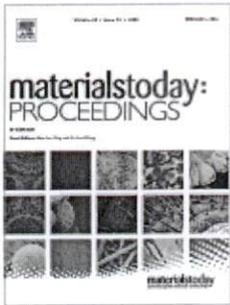
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Abstract

Biometric systems are the most advanced access technology developed so far in the 21st century. It does not even require to carry key cards or passwords in mind. Today most of the commercial and private entries are protected by biometric recognition systems like fingerprint scans facial

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Electronic applications of multi-walled carbon nanotubes in polymers: A short review

Nattanmai Raman Dhineshbabu  , Nagireddy Mahadevi, Dundi Assein

Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, East Godavari District-533437, Andhra Pradesh, India

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Abstract

In today's nano scale regime, a smart electronic device is attractive and has a primary role for majority of the world's research community, particularly scientific and engineering community. Quasi one-dimensional carbon materials are an ideal material for flexible and wearable electronic applications. Significant progress has been made in developing electronics using carbon-based polymer composites. The incorporation of micro-materials and carbon nanomaterials in polymer has been attempted since the 1990s and has shown a number of improved properties. In this review, the performance of the polymer composite with nanophase carbon materials is explored and their applications are discussed. In recent years, a wide range of carbon nanomaterials are used to transmit electrical signals for potential applications such as electronics, chemical sensors, mechanical sensors/actuators, and smart materials. Moreover, we have also discussed carbon-based materials, especially multi-walled carbon nanotubes, that are applied on a substrate using some printing technology for flexible electronics, and the progress of CNT-based RF antenna, textile, electromagnetic and interference shielding, and sensor applications has been reported.

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Keywords

Multi-walled carbon nanotubes; Electromagnetic and interference shielding; CNT-based RF antenna; Textile; Sensor applications

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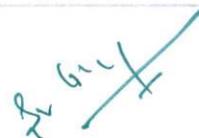
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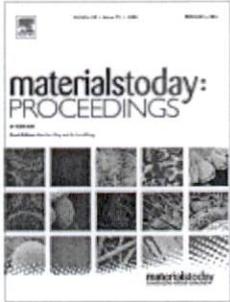
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Study of microstructure and mechanical properties of aluminium alloy (AA-6351-T6) using friction stir welding

Pramod Kumar ^{a, d} ✉, Rajesh Kumar ^b, Bidesh Kumar Hembram ^c, M. Murugan ^a, Abdul Arif ^a, M. Veerababu ^a

^a Mechanical Engineering, Aditya College of Engineering and Technology, Surampalem, India

^b Mechanical Engineering, Aditya Engineering College, Surampalem, India

^c Petroleum Technology, Aditya Engineering College, Surampalem, India

^d Mechanical Engineering, National Institute of Technology, Patna, India

Received 19 February 2020, Revised 23 March 2020, Accepted 24 March 2020, Available online 10 April 2020, Version of Record 23 June 2020.

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The current study investigates the effect of welding speed on the mechanical and microstructural properties in similar friction stir welding of Aluminium Alloy (AA-6351-T6). The contribution of intense plastic deformation and high-temperature exposure within the stirred zone during friction stir welding results in recrystallization and development of texture within the stirred zone and precipitate dissolution and coarsening within and around the stirred zone. Based on micro-structural characterization of grains and precipitates, three distinct zones, stirred (nugget) zone, thermo-mechanically affected zone (TMAZ), and heat-affected zone (HAZ). The micro-structural changes in various zones have significant effect on post weld mechanical properties.

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Keywords

FSW; Recrystallization; Thermo-mechanically affected Zone; Microhardness; Heat affected zone; Tensile strength

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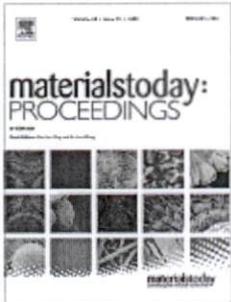
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Investigation of numerical modelling of TIG welding of austenitic stainless steel (304L)

Pramod Kumar^{a, c},  Rajesh Kumar^b, Abdul Arif^a, M. Veerababu^a

^a Mechanical Engineering, Aditya College of Engineering and Technology, Surampalem, India

^b Mechanical Engineering, Aditya Engineering College, Surampalem, India

^c Mechanical Engineering, NIT Patna, India

Received 17 February 2020, Revised 16 March 2020, Accepted 18 March 2020, Available online 10 April 2020, Version of Record 23 June 2020.

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Abstract

Welding is one of the most commonly joining processes used in industry at widespread. Austenitic stainless steel are application in fabrication pressure vessels. Thin sheets of 304L can be welded by pulsed Tungsten Inert Gas (TIG) joining process. The current study investigates the numerical modelling of pulsed TIG welding of austenitic stainless steel using ANSY APDL. Double ellipsoidal heat source have been used for modelling the pulsed TIG welding. The objective of the present investigation is to study the effect of varying welding current on the temperature distribution curve. Temperature profile affects the microstructure, mechanical properties and the residual stresses developed in the welded joint during TIG welding. It has been observed that the peak temperature increases with increasing welding current.

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Keywords

TIG welding; Welding current; 304L; Temperature distribution; FEM, peak temperature

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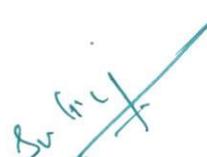
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Efficient Hardware of RGB to Gray Conversion Realized on FPGA and ASIC

Kaushal Kumar^{a,*}, Ritesh Kumar Mishra^a, Durgesh Nandan^b

^aDepartment of ECE, National Institute of Technology, Patna, India

^bAditya Engineering College, Surampalem, AP, India

Abstract

RGB to gray conversion is an integral part of various computer vision applications such as face detection, object detection and surveillance systems. The resource required for the real time implementation of all these applications decreases to a great extent if computation is performed on gray images, which has 8 bit wide pixel, rather than color images, which has 24 bit wide pixel. In this paper, hardware efficient implementation of RGB to gray image is proposed which is realized on both FPGA and ASIC. FPGA realization is performed on digilent Zedboard having Artix-7 FPGA while the ASIC implementation is performed using Cadence Genus and Innovus tool at 45 nm process technology. ASIC implementation of proposed technique brings about total area utilization of $262 \mu\text{m}^2$ and ADP of $18.078 \mu\text{m}^2 \cdot \text{ns}$ which are respectively 81.42% and 96.55% less contrasted with existing design. The proposed system is seen to operate at high frequency of 3 GHz.

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Keywords: ASIC; Computer Vision; FPGA; Gray; Image Processing; RGB

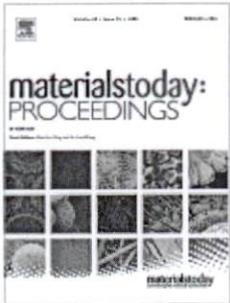
1. Introduction

Image processing plays an important role in various computer vision applications such as remote sensing, surveillance systems, biomedical imaging, object detection, and its localization [1]-[9]. Real-time images are usually composed of three primary colors, i.e., red, green, and blue, popularly known as RGB. Other colors are produced by combining red, green, and blue colors. In various image processing applications, various processings are required to conduct on each pixel. It is not feasible to process RGB pixels because of the high computation complexity and storage requirement. To overcome such issues, the RGB images are first converted into gray images, and then the required processing is carried out. Gray image is a monochrome image consisting of only brightness information. Figure 1 provides a general block diagram of steps involved in the implementation of various computer vision ap-

* Corresponding author.

E-mail address: kaushal.ec16@nitp.ac.in

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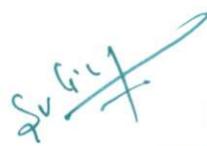
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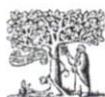
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Biologically synthesized silver nanoparticles from shorea robusta L. plant and associated antibacterial property

P. Koteswara Rao ^a ✉, B. Vikram Babu ^b, M. Sushma Reddi ^c, K. Anjani Devi ^b, A. Rama Krishna ^d^a Department of Biochemistry, Andhra University, Visakhapatnam 530003, India^b Department of Physics, Aditya Engineering College (A), Kakinada 533005, India^c Department of Physics, Dr. B. R. Ambedkar University, Srikakulam 532410, India^d Department of ECE, Aditya College of Engineering and Technology, Kakinada 533005, India

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Abstract

Extracts from plants were lately utilized for nano particles green synthesis as they abundantly possess bioactive compounds. These compounds possess nano particles (NP's) due to reduction of the metal ions in a one step green synthesis technique. The present study substantiates for the first time of the facility of Shorea robusta plant parts (leaf and stem) extracts grown under in vitro condition for the biosynthesis of silver nanoparticles (AgNP's). At 472 nm for leaf and 441 for stem of the surface plasmon resonance were found and confirmed the formation of AgNP's. Moreover, SEM images showed that nanoparticles had spherical morphology. Furthermore, particles crystalline nature confirmed by X-ray diffraction studies, possible biomolecules responsible in

bio reduction of Ag ions by FT-IR analysis, Antibacterial attempt confirmed of biosynthesized AgNP's against bacteria. Based on the results, by the plants growing under controlled conditions, it is practicable to create Np's with preferred possessions.

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Keywords

Antibacterial resistance; AgNP's; Biological synthesis; Antibacterial activity; S. robusta; Leaf extract; Stem extract

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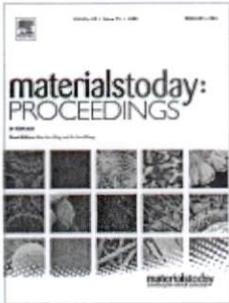
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Evaluation of solar PV panel performance under humid atmosphere

Abhishek Kumar Tripathi^a✉, Shashwati Ray^b, Mangalpady Aruna^c, Sandeep Prasad^d

^a Department of Mining Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

^b Department of Electrical Engineering, Bhilai Institute of Technology, Durg, Chhattisgarh, India

^c Department of Mining Engineering, National Institute of Technology Karnataka, Surathkal, India

^d Department of Mining Engineering, A.K.S. University, Satna, India

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Abstract

The main aim of this paper is to study the effects of humidity on the PV panel. In this paper, the panel performance was studied in the laboratory under varied humid atmosphere. The PV performance parameters were computed by measuring its output voltage and current, amount of solar radiation incident on the panel's surface and its surface temperature by varying humidity levels artificially in the laboratory. From the studies it was observed that with rising humidity levels, solar insolation and panel power output decrease. With an increment of 50.15% in the humidity level, the panel power output reduces by 34.22%. Moreover, it was found that due to the increase in humidity from 65.40% to 98.20% the panel temperature got lowered by 11.40%.

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Keywords

Humidity; Output power; Solar radiation; PV panel; Temperature

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Numerical Assessment of the Effects of Rooftop PVs on Ambient Air Temperature

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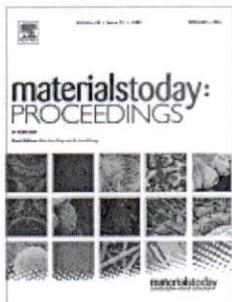
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Identification of double transmission line shunt faults by using combined DWT and interval type-2 fuzzy logic for digital distance protection

K. Rambabu , K. Bapayya Naidu

Department of Electrical and Electronics Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

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Abstract

In this paper, a technique for unerring identification of shunt faults on a transmission line is suggested. This technique is based on discrete wavelet transforms and Interval Type-2 fuzzy logic; six line currents are taken at transmission line relay location. The validity of the recommended technique is demonstrated by simulation research using PSCAD/EMTDC. Simulations were achieved for distinctive varieties of faults thinking about extensive variations in the operating conditions. The recommended technique can identify and classify the fault within the half cycle period and the time taken by this method is less compared to conventional fuzzy methods.

 Previous

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Keywords

Fault classification; Transmission line; Type-2 fuzzy logic; Wavelet transform; DWT; PSCAD/EMTDC

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Reconfiguration with DG location and capacity optimization using crossover mutation based Harris Hawk Optimization algorithm (CMBHHO)

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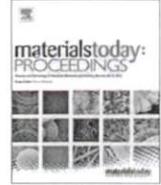
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A decisive evaluation of series connected-hybrid modulated inverter for EV applications

B. Rajani^a, Bapayya Naidu Kommula^b

^aAditya College of Engineering & Technology, Surampalem, A.P, India

^bAditya Engineering College, Surampalem, A.P, India

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ABSTRACT

Acute Efficiency, extreme power density, prominent reliability is the primal factors for electric propulsion of the hybrid & electric vehicles. This work acquaints the reduced switch count based multilevel inverter operating under RV technique for electric vehicular applications with the use of PV energy source. Presently existing power inverter strategies for HEVs may prefer a DC-DC boost converter to attain the high voltage gain. The running EV inverters have low power density and more expensive and have low efficacy due to the need of bulky inductor eradicate the uneven ripples and current harmonics. A Decisive evaluation of Intended MLI boost Inverter is operating under optimal modulation based HPD, HPOD, HAPOD schemes, it have better features compare to other modulation schemes. The dynamic analysis of intended MLI with the efficient modulation scheme is implemented by Matlab/Simulink environment tool and simulation results are to be conferred.

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1. Introduction

The automotive industry is rising very apace towards Electric Vehicular requisition; moreover these paradigm shifts presently make to smooth transition through electrical drive components. It is an ever-increasing crave for interfacing renewable energy sources especially for EV due to energy strait, renewable energy systems like photo-voltaic (PV) cell, wind energy sources, fuel cell (FC) sources are utilized in so many industrial applications related to automotive systems [1]. In that PV system are more popular due to vary with relates to requirement and interfaced to electric vehicle by using power conditioning units [2].

A centralised classical series connection of several panels is equipped to obtain DC-link voltage, by utilizing power semiconductor apparatus [3]. Conversion of low DC values into high DC link voltage with the help of extreme range of DC/DC converters and interfaced to drive system using DC/AC such as two-level converter topologies, but it is not required. Multi-level inverters have more expertise to attain high power range/voltage range applications. With the decrement of low dv/dt or di/dt ratio with less distorted outcomes and it may reduction of noise, EMI, need to reduce load

side filter. The comprehensive design of MLI is to synthesize the nearby sinusoidal voltage by switching the consequent switches appear several voltage levels respect to switching actions [4]. Morely there are 3 types of multilevel strategies are as follows (Fig. 1);

- Series Connected type MLI Strategy.
- Flying Capacitor type MLI Strategy.
- Diode Clamped type MLI Strategy.

The analogy of FC type and DC type converters and series connected type MLI strategy have their better features due to ease plan and assemble to uniform structure of the converter. As above specified series connected type have more appearance due to no endowment of balancing capacitors & clamping diodes and this series connected converter compel the more number of DC input sources when the corresponding levels increases [5]. Here authors highlighted new converter strategy operated under RV technique with optimal hybrid modulation schemes. The imperative selection theme of the control action for this MLI strategy is conferring to minimize the THD values with respect to switching action. Number of voltage levels may increase the respective harmonized distortions also suppressed in outcome parameters with low switch count.

E-mail address: dr rajaniboddepalli2015@gmail.com (B.N. Kommula)

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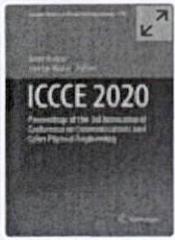
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ICCE 2020 pp 1007–1017

Impact Study of Internet of Things on Smart City Development

U. M. V. V. Hemanth, N. Manikanta, M. Venkatesh, M.

Visweswara Rao & Durgesh Nandan 

Conference paper | First Online: 12 October 2020

867 Accesses | 1 Citations

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

Abstract

The Internet of Things (IOT) is the best technology to develop a smart city. This paper gives a piece of brief information about developing a smart city with the help of IOT. It decreases the expenses and providing efficient services, reduces the wastage of time. IoT smart city mostly common problems are parking system, water, smart environment, and drainage system. This paper gives solutions to the above-mentioned problems. IOT can be sent the data and receive the data and it also stores the data. Smart city development using electronic devices, advanced sensors, and thousands of gadgets are used. The Internet of things consists of

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, AP, India**

U. M. V. V. Hemanth, N. Manikanta, M.

Venkatesh & M. Visweswara Rao

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Durgesh Nandan

Corresponding author

Correspondence to Durgesh Nandan.



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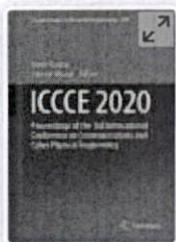
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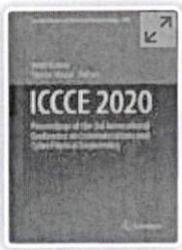
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ICCCE 2020 pp 1179–1186

Effective Data Acquisition with Sensors Through IoT Application: A Succinct Study

P. Lakshmi Mounika, **A. Konda Babu** & Durgesh Nandan



Conference paper | First Online: **12 October 2020**

849 Accesses

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

Abstract

Today the Internet of Things is increasing day-by-day due to its wide applications in many aspects. Internet of Things is identified as one of the emerging techniques in the coming years as technology is turning towards the world of the internet and in smart living. The concept of IoT leaves us in a place of computer networks because it has a wide range of applications from our home to the entire world. In the future, for the increase in demand IoT requires a large necessity from sensors. In this paper we are going to know about WSN usage which is acting as a long-term environment



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SURAMPALEM - 533 437

Author information

Authors and Affiliations

**Department of Electronics and Communication
Engineering, Aditya Engineering College,
Surampalem, East Godavari, India**

P. Lakshmi Mounika & A. Konda Babu

**Accendere Knowledge Management Services
Pvt. Ltd, CL Educate Ltd, New Delhi, India**

Durgesh Nandan

Corresponding author

● Correspondence to [Durgesh Nandan](#).

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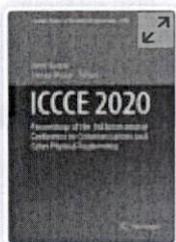
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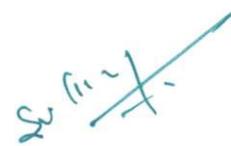
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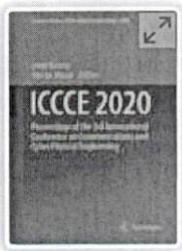
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ICCCE 2020 pp 1169–1178

Colour Image De-noising Analysis Based on Improved Non-local Mean Filter

Kanuri Alekya, Konala Vijayalakshmi, **Nainavarapu Radha** & **Durgesh Nandan** 

Conference paper | First Online: 12 October 2020

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Abstract

In a non-linear filter, open resources filter is a particular scenario that is used to reduce the Gaussian noise in our paper and it performs well to reduce it. The major advantage of non-local means filter is to preserve the limits and particulars of a unique image. In this paper, combined both open means filter and mutual filter to recommend an enhanced filter for colour picture de-noising. Novel influence significance is computed by addition consistency in sequence into the weight to evaluate the parallel of the patch. At the final stage of this paper deals that the proposed method of NLM and

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Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College,
East Godavari, Surampalem, AP, India


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Radha

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Durgesh Nandan

Corresponding author

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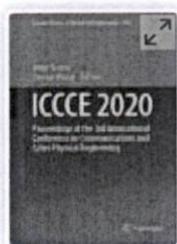
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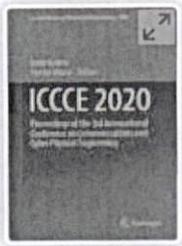
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ICCE 2020 pp 1029–1040

Trends in 6G Wireless Molecular Communications: A Succinct Study

O. T. Ratna Deepthi, P. Sai Bhaktanjana Rao, P. Krishna Veni & Durgesh Nandan 

Conference paper | First Online: 12 October 2020

887 Accesses

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

Abstract

In this paper, we have discussed the capability of trends in 6G wireless molecular communications (MC) into upcoming generations of wireless networks. While 5G expected to be more significant in 2019, 6G is the burning topic of interest among researchers due to various drawbacks of 5G. Already initiatives have been taken in numerous republics focusing on the conceivable research on 6G machinery. The objective of this paper is to analyse the different aspects of 6G communication networks and motivate further investigation in this field. At first, the advantages of 6G wireless MC has been explained and compared with the traditional



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Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College,
East Godavari, Surampalem, A.P., India

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O. T. Ratna Deepthi, P. Sai Bhaktanjana Rao & P.

Krishna Veni

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Corresponding author

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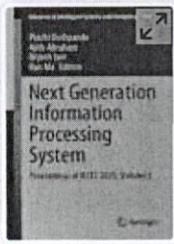
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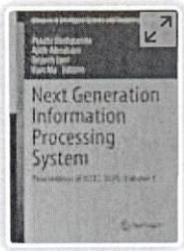
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Next Generation Information Processing System pp 100–108

Study of Mechanized Recognition of Driver's Smartphone Exploiting Common Vehicle-Riding Actions

Kadiyala Yaswanth , Rajasekhar Manda & Durgesh Nandan

Conference paper | First Online: 14 June 2020

258 Accesses | 1 Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1162)

Abstract

Distracted driving due to using smartphone like texting, browsing Web, etc. increases the risk of accidents. To prevent this distracted driving, many suggestions have been proposed, but out of them, none addressed completely and efficiently to prevent this distracted driving. This work presents a concept called as mechanized recognition of driver's smart phone exploiting common vehicle-riding actions to overcome above said deficiency concept. The fusion of the driver's smartphone with phone's sensory provides the information related to rider's actions. This information can be obtained by

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

Kadiyala Yaswanth & Rajasekhara Manda

Accendere Knowledge Management Services

Pvt. Ltd., CL Educate Ltd., New Delhi, India

Durgesh Nandan


**PRINCIPAL
ADITYA ENGINEERING COLLEGE
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Corresponding author

Correspondence to [Kadiyala Yaswanth](#).

Editor information

Editors and Affiliations

**Department of Computer Engineering, Dr.
Babasaheb Ambedkar Technological University,
Lonere, Maharashtra, India**

Dr. Prachi Deshpande

**Machine Intelligence Research Labs (MIR Labs),
Auburn, WA, USA**

Prof. Dr. Ajith Abraham

**Department of Electronics and
Telecommunication Engineering, Dr. Babasaheb
Ambedkar Technological University, Lonere,
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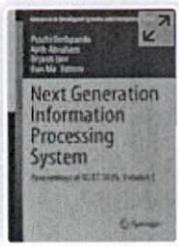
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Proceedings of ICCET 2020, Volume 2

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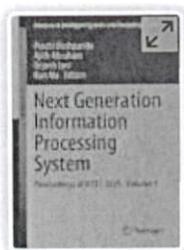
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Next Generation Information Processing System pp 109–121

Animal Repellents from Agricultural Fields

P. Sreevardhan, B. Vidheya Raju & Durgesh Nandan 

Conference paper | First Online: 14 June 2020

279 Accesses | 1 Altmetric

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1162)

Abstract

Crop damages inflicted by animals are one of the biggest challenges throughout the world. Animals such as pigs, monkeys, and many others may cause Spartan damage to crops. They can damage the plants by feeding on plant parts or only by organization more than the field and squashing in excess of the crops. Therefore, animals may easily cause significant yield losses and incite additional financial problems. In order to decrease the problems or damages caused by animals to the farmer which destroys the farm, there are many ways. The ways include haunting the animals, producing the sounds manually, and using chemical compounds for repelling birds and animals; some

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Author information

Authors and Affiliations

Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

P. Sreevardhan & B. Vidheya Raju

Accendere Knowledge Management Services Pvt. Ltd., CL Educate Ltd., New Delhi, India

Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information

Editors and Affiliations

Department of Computer Engineering, Dr. Babasaheb Ambedkar Technological University, Lonere, Maharashtra, India


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Dr. Prachi Deshpande

**Machine Intelligence Research Labs (MIR Labs),
Auburn, WA, USA**

Prof. Dr. Ajith Abraham

**Department of Electronics and
Telecommunication Engineering, Dr. Babasaheb
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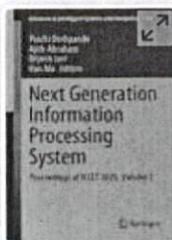
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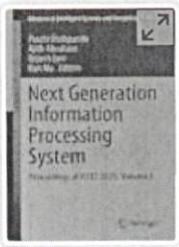
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Next Generation Information Processing System pp 143–150

Study on Bicycle-Based Real-Time Information Feedback System by Using IoT

Guthula Hema Mutya Sri, Galla Bharggav, **Rajasekhar Manda** & Durgesh Nandan 

Conference paper | First Online: 14 June 2020

267 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1162)

Abstract

IoT means connecting, establishing communication between objects by using the Internet. This paper presents a study reports on how bicycling by using IoT becomes an exact health tool and major benefit in terms of health monitor. Nowadays, the bicycle is the most popular exercise in metro cities. At the same time, high-speed Internet and various sensors combination based on IoT devices are widely used. Although, bicycles have all known benefits to health but they fail to provide cyclists person exact health benefits information. If no information, people lose charm to do cycling in the long term. Therefore, this

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

Guthula Hema Mutya Sri, Galla

● Bharggav & Rajasekhar Manda

**Accendere Knowledge Management Services
Pvt. Ltd., CL Educate Ltd., New Delhi, India**

Durgesh Nandan

Corresponding author

Correspondence to Durgesh Nandan.

Editor information

Editors and Affiliations

● **Department of Computer Engineering, Dr.
Babasaheb Ambedkar Technological University,
Lonere, Maharashtra, India**

Dr. Prachi Deshpande

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Auburn, WA, USA**

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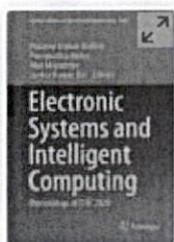
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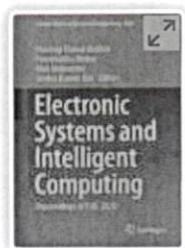
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Electronic Systems and Intelligent Computing, pp 575–584

Image Fusion: Challenges, Performance Metrics and Future Directions

S. B. G. Tilak Babu , I. Chintesh, V. Satyanarayana & Durgesh Nandan

Conference paper | First Online: 23 September 2020

610 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 686)

Abstract

Image fusion is a technique of fusing multiple images for better information and a more accurate image compared to source images. The applications of image fusion in the modern military, multi-focus image integration, pattern recognition, remote sensing, biomedical imaging, etc. In this paper discussed, advantages and drawbacks of newly arrived existing methods in the transform domain and spatial domain image fusion, universal acceptable flowchart for image fusion obtained from literature, different helpful datasets that are accessible to assess extensively image fusion

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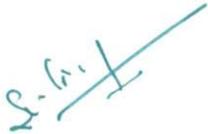
Author information

Authors and Affiliations

Department of Electronics and Communication Engineering, Aditya Engineering College, Surampalem, India

S. B. G. Tilak Babu, I. Chintesh & V. Satyanarayana
Accendere Knowledge Management Services Pvt, Ltd, CL Educate Ltd, New Delhi, India

Durgesh Nandan


**PRINCIPAL
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SURAMPALAM - 533 437**

Corresponding author

Correspondence to S. B. G. Tilak Babu.

Editor information

Editors and Affiliations

**School of Computer Engineering, Kalinga
Institute of Industrial Technology (KIIT) Deemed
to be University, Bhubaneswar, Odisha, India**

Dr. Pradeep Kumar Mallick

**Department of Electronics and Communication
Engineering, National Institute of Technology
Arunachal Pradesh, Yupia, Arunachal Pradesh,
India**

Dr. Preetisudha Meher

**Department of Electronics and Communication
Engineering, National Institute of Technology
Arunachal Pradesh, Yupia, Arunachal Pradesh,
India**

Dr. Alak Majumder

**Department of Electronics and Communication
Engineering, National Institute of Technology
Rourkela, Rourkela, Odisha, India**

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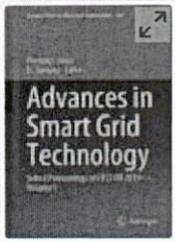
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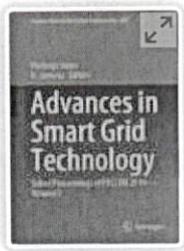
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Advances in Smart Grid Technology pp 51–62

Development of Wind Energy Technologies and Their Impact on Environment: A Review

Manyamyuva Naga Satya Suryakiran, Waseemah Begum,
R. S. Sudhakar & Sharad Kumar Tiwari 

Conference paper | First Online: 23 September 2020

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 687)

Abstract

Wind energy is a kind of renewable energy which produces electrical power from wind. Wind turbines are installed at a specific geographical location where there is abundant of wind. There are various environmental effects due to the operation and installation of the wind turbines that cannot be overlooked. In this paper, a status report of wind installation across the globe as well as environmental effects of installation of wind turbine has been discussed.

Keywords

Environmental impact **Global warming**

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Author information

Authors and Affiliations

Department of Electrical and Electronics Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

● Manyamyuva Naga Satya Suryakiran, Waseemah Begum, R. S. Sudhakar & Sharad Kumar Tiwari

Corresponding author

Correspondence to [Sharad Kumar Tiwari](#).

Editor information

Editors and Affiliations

Department of Management and Innovation Systems, University of Salerno, Fisciano, Italy

Prof. Pierluigi Siano


**PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 457**

**School of Electrical Engineering, Vellore Institute
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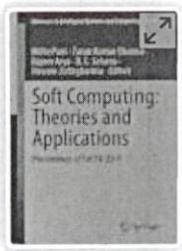
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Soft Computing: Theories and Applications pp 813–823

A Review on Detection of Breast Cancer Cells by Using Various Techniques

Vanaja Kandubothula, **Rajyalakshmi Uppada** & Durgesh Nandan 

Conference paper | First Online: **30 June 2020**

551 Accesses | **1** Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1154)

Abstract

This paper discussed a framework for the detection of breast cancer cells by using various techniques. Dangerous cancer is mostly observed in women's breast. The mortality rate can be decreased when breast cancer is detected at an early stage. By using different techniques, breast cancer cells can be detected. From the past decade, to detect and identify the stage of the cancer, computer-aided diagnosis (CAD) system has been initiated. This system consists of different steps like preprocessing, nuclei detection, segmentation, feature extraction, and classification to detect



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-

Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College, Surampalem, India

Vanaja Kandubothula

Accendere Knowledge Management Services Pvt. Ltd., CL Educate Ltd., New Delhi, India

Rajyalakshmi Uppada & Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information

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Dr. Rajeev Arya

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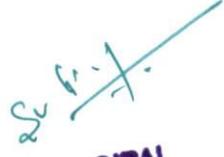
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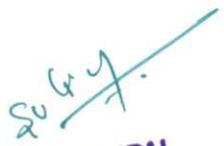
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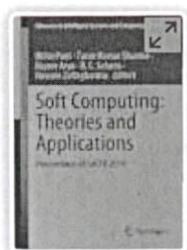
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Soft Computing: Theories and Applications pp 837–848

Utilization of the Internet of Things in Agriculture: Possibilities and Challenges

P. Mani Sai Jyothi & Durgesh Nandan 

Conference paper | First Online: 30 June 2020

584 Accesses | 3 Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1154)

Abstract

Agriculture is the backbone of most of nation. A nation's economy mostly depends upon the growth of agriculture. It is a combination of several processes which include a lot of manpower and hard work. Internet of things (IoT) is the process of connecting several devices over a single network. It ensures the connectivity of several devices. Data can be transferred easily from one device to the other. Hence, the integration of IoT with agriculture seems to be an effective way to improve the productivity of agriculture. It reduces the problems faced by the farmers thereby increasing the profits. Agriculture seems to be a risky job as it mainly

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

P. Mani Sai Jyothi

**Accendere Knowledge Management Services
Pvt. Ltd., CL Educate Ltd., New Delhi, India**

Durgesh Nandan

Corresponding author

Correspondence to Durgesh Nandan.

Editor information

Editors and Affiliations

**Department of Paper Technology, IIT Roorkee,
Roorkee, India**

Dr. Millie Pant


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**Graphic Era Hill University, Dehradun,
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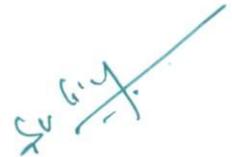
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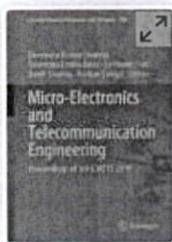
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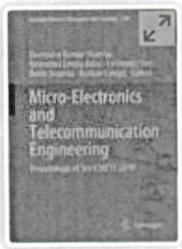
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Micro-Electronics and Telecommunication Engineering pp 431–438

Evaluation and Study of IoT Entrances

E. Sai Sravani, A. V. Sreehitha, **A. Konda Babu** & Durgesh Nandan 

Conference paper | First Online: **03 April 2020**

566 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 106)

Abstract

The people in the present scenario are leading a busy life which is filled with modern technology that changes rapidly. In such a rapid growth of the human race, technological developments were also increasing rapidly. At the beginning of the twenty-first century, technology turned its focus towards automation which leads to the development of new innovative technology called IoT. But it is a bit harder to implement because IoT is not just connecting hardware devices with the Internet, but it is the interconnection of devices with the Internet that should work with intelligence. To do that, we should require gateways and a cloud to store data. The main key element in the complete success of


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Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College, Surampalem, India

E. Sai Sravani, A. V. Sreehitha & A. Konda Babu
Accendere Knowledge Management Services Pvt. Ltd., CL Educate Ltd., New Delhi, India
Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information

Editors and Affiliations

Department of Electronics and Communication Engineering, SRM Institute of Science and Technology, Delhi NCR Campus, Ghaziabad, India

Dr. Devendra Kumar Sharma

Department of Automatics and Applied Software, "Aurel Vlaicu" University of Arad, Arad, Romania

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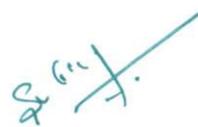
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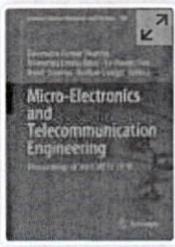
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Micro-Electronics and Telecommunication Engineering pp 439–445

Survey on the Impact of FSM Design for High-Performance Architecture Evaluation

K. Sowmya, **P. Bujji Babu** & Durgesh Nandan

Conference paper | First Online: 03 April 2020

572 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 106)

Abstract

In digital signal processing (DSP), the power consumption is more so, to decrease power and latency without affecting the other parameters, and mostly, the filters are designed using finite state machine (FSM). This paper gives a view of the multiplier architectures and its design issues for the expected level of performance. Literature states that the FSM approach is also a good choice in designing the multiplier architectures. In this paper, various design approaches are also described with the HDL modeling language, like in Verilog HDL, in building efficient multipliers. High-speed multipliers like Vedic multipliers are good in terms of speed


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Author information

Authors and Affiliations

Department of Electronics and Communication

Engineering, Aditya Engineering College,

Surampalem, Andhra Pradesh, India

K. Sowmya & P. Bujji Babu

Accendere Knowledge Management Services

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Editor information

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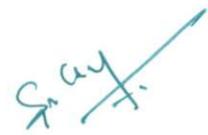
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Department of Multimedia and Virtual Reality,

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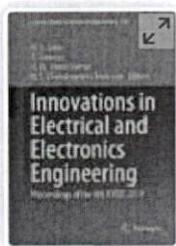
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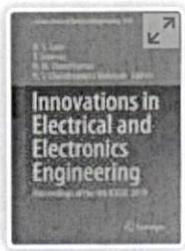
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Innovations in Electrical and Electronics Engineering pp 449–461

Necessity of Power System State Estimation: A Generalized Linear State Estimation Solution with Application of PMU Measurements

M. Ravindra, R. Srinivasa Rao, **V. Srinivasa Rao**, N. Praneeth & Vasimalla Ashok

Conference paper | First Online: 24 March 2020

645 Accesses | 1 Citations

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 626)

Abstract

This paper presents a review on major blackouts occurred in power grid across the world and importance for the need of state estimation (SE) solution. This work introduces the applications of phasor measurement units (PMU) to reduce the occurrence of blackouts in power system. The blackouts in power system can occur due to overload, light load conditions, heavy storms or due to line outages. The cascade failure due to line outages, i.e., measured as N-1 outages can lead to power system blackout. The necessity of power


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Author information

Authors and Affiliations

Department of Electrical and Electronics Engineering, Aditya College of Engineering, Suram Palem, Kakinada, India

M. Ravindra

Department of Electrical and Electronics Engineering, University College of Engineering, JNTUK, Kakinada, India

R. Srinivasa Rao

Department of Electrical and Electronics Engineering, Gurunanak Institutions, Hyderabad, India

N. Praneeth

Department of Electrical and Electronics Engineering, Anubose Institute of Technology,


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Khammam, India

Vasimalla Ashok

**Department of Electrical and Electronics
Engineering, Aditya Engineering College (A),
ADB Road, Surampalem, India**

V. Srinivasa Rao

Editor information

Editors and Affiliations

Guru Nanak Institutions, Hyderabad, India

● Dr. H. S. Saini

**Department of Electronics and Communication
Engineering, Kakatiya University, Warangal,
India**

Dr. T. Srinivas

**Department of Electrical Engineering, National
Institute of Technology, Warangal, India**

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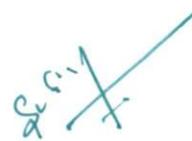
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Soft Computing Techniques and Applications pp 183–193

Performance Analysis of Single-Phase VSI Using Variable and Multi-pulse-Width Modulation Techniques

Kurumalla Saithulasi, Panniru Raj kumar, Koppiseti Chandra Mukesh kumar & K. RamBabu 

Conference paper | First Online: 28 November 2020

241 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1248)

Abstract

This paper demonstrates the variable pulse-width modulation (PWM) methods for a 1- Φ full-bridge DC-AC converter. The performance of the circuit is estimated from the waveforms of output voltage and current. The harmonic spectral behavior of the modulation methods is also taken into consideration to highlight the merits and demerits of each method. A MATLAB/Simulink platform has been employed to obtain the output waveforms and fast Fourier transform (FFT) analysis.

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Author information

Authors and Affiliations

Department of Electrical and Electronics

Engineering, Aditya Engineering College,

Surampalem, Andhra Pradesh, India

Kurumalla Saithulasi, Panniru Raj kumar, Koppiseti

Chandra Mukesh kumar & K. RamBabu

Corresponding author

Correspondence to K. RamBabu.

Editor information

Editors and Affiliations

Sikkim Manipal Institute of Technology,

Majhitar, Sikkim, India

Dr. Samarjeet Borah

Sikkim Manipal Institute of Technology,

Majhitar, Sikkim, India

Dr. Ratika Pradhan

Department of Computer Science and

Engineering, JIS University, Kolkata, West

Bengal, India

Prof. Nilanjan Dey

GLA University, Mathura, Uttar Pradesh, India



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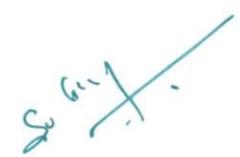
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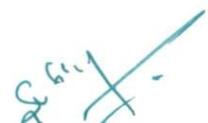
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Soft Computing Techniques and Applications pp 103–109

Control Scheme to Minimize Torque Ripple of SRM

M. Venkatesh , Vijayasri Varshikha Joshi, K. L. Mounika & B. Veerananarayana 

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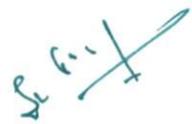
Abstract

This paper discusses the DTC and DITC scheme for switched reluctance motor. Modeling, controller and simulation have been discussed in this paper. TSK-based fuzzy controller design has been incorporated in switched reluctance motor to control the speed. MATLAB-based simulation has been provided in this paper. From simulation analysis, TSK fuzzy controller provides better performance.

Keywords

SRM DTC DITC TSK fuzzy rules

Fuzzy controller design


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Author information

Authors and Affiliations

Department of Electrical and Electronics Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

M. Venkatesh, Vijayasri Varshikha Joshi, K. L. Mounika & B. Veerananarayana

Corresponding authors


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Correspondence to M. Venkatesh or B. Veerananarayana.

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**Sikkim Manipal Institute of Technology,
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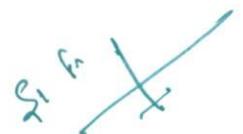
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Soft Computing Techniques and Applications pp 111–120

Simulation and Analysis of Seven-Level Voltage Source Inverter

L. Sri Hansitha Priya, K. Rajesh, U. Satya Sai Polaraju & N.

Rajesh 

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Abstract

A seven-level inverter topology with the minimum component count is presented in this paper. The presented topology has low switching stress and fundamental frequency operating switches that enhance the efficiency of the configuration. The operating modes of the proposed inverter are analyzed in detail during zero, positive, and negative levels. The proposed topology is gated using fuzzy based sinusoidal Pulse Width Modulation in MATLAB/Simulink environment.

Keywords

Multilevel inverter **Seven-level**

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Author information

Authors and Affiliations

**Department of Electrical and Electronics
Engineering, Aditya Engineering College,
Surampalem, Andhra Pradesh, India**

L. Sri Hansitha Priya, K. Rajesh, U. Satya Sai
Polaraju & N. Rajesh

Corresponding author

Correspondence to N. Rajesh.

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Editors and Affiliations

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Sikkim, India**

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Soft Computing Techniques and Applications pp 95–101

Cycloconverter Fed Capacitor Start Capacitor Run Induction Motor Drive: Simulation Analysis

Pragada Niharika, Vinnakota Vineetha & K. Durgendra Kumar 

Conference paper | First Online: 28 November 2020

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Abstract

This paper provides a detailed explanation of control principle of cycloconverter-fed capacitor-start capacitor-run induction motor. Analog circuitry scheme for gate pulse generation scheme of cycloconverter, and different industrial applications have been discussed in this study. For motor control application, cycloconverter-fed capacitor-start capacitor-run induction motor has been considered in this study. Fuzzy-PD+I based feedback control approach has been used for control which provides better performance than classical PID control approach. MATLAB based

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Author information

Authors and Affiliations

Department of Electrical and Electronics Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

Pragada Niharika, Vinnakota Vineetha & K.

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ADITYA ENGINEERING COLLEGE
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Corresponding author

Correspondence to K. Durgendra Kumar.

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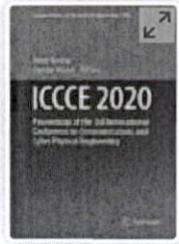
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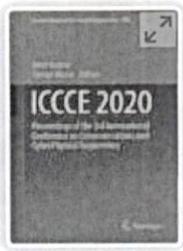
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ICCE 2020 pp 957–963

Systematic Observation on Non-orthogonal Multiple Access for 5th Generation Communication Technology

Muppana Sonika, **S. B. G. Tilak Babu** & Durgesh Nandan



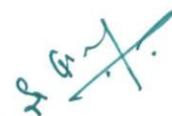
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Abstract

Non-Orthogonal Multiple Access (NOMA) has become popular optimizing automation that offers huge power, less dormancy and has a high connection to meet vivid opportunities in the fifth—stage of the cable fewer networks. It is a multiple access scheme. Since the rearmost is regarded to be Heterogeneous Networks (Het Nets), the accomplishment of NOMA on 5G Het Nets is greatly considered. In this paper, temporarily reveal that the NOMA strategies have grown step by step starting Single-Carrier NOMA (SC-NOMA) into



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Author information

Authors and Affiliations

Department of Electronics and Communication Engineering, Aditya Engineering College, East Godavari District, Surampalem, India

Muppana Sonika

Department of ECE, Aditya Engineering College, Surampalem, A.P., India

S. B. G. Tilak Babu

Accendere Knowledge Management Services Pvt. Ltd., New-Delhi, India

Durgesh Nandan

Corresponding author

Correspondence to Durgesh Nandan.

Editor information


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Editors and Affiliations

**BioAxis DNA Research Centre (P) Ltd.,
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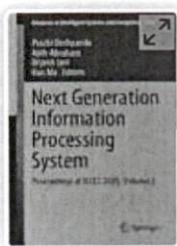
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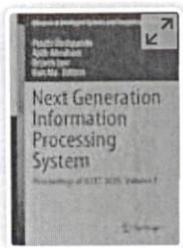
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Next Generation Information Processing System pp 132–142

A Clear View on Design of Low-Noise Amplifiers Using CMOS Technology

Lalitha Sowmya , S. Khadar Bhasha & Durgesh Nandan

Conference paper | First Online: 14 June 2020

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Abstract

A detailed explanation on the design of low-noise amplifier is given in this paper. The wideband low-noise amplifiers are implemented in 0.18 μm CMOS technology. The various designs of low-noise amplifiers, such as the LNAs which reduce power dissipation, occupy less area, and consume less power, are presented in view of this paper. A low-noise amplifier design employs different methods, such as using center-tapped inductors, by interconnecting the stages, which are explained in this paper.

Keywords

Mutual coupling Low-noise amplifier


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CMOS low-noise amplifier for 3.1–10.6 GHz wireless receivers. IEEE J. Solid State Circ. **39**(12), 2259–2268 (2004)

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Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College, Surampalem, East Godavari, India

Lalitha Sowmya & S. Khadar Bhasha

Accendere Knowledge Management Services Pvt. Ltd., CL Educate Ltd., New Delhi, India

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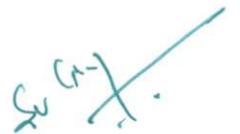
Corresponding author

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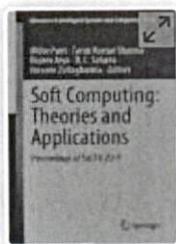
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Soft Computing: Theories and Applications pp 825–836

Analysis of Security Issues and Possible Solutions in the Internet of Things for Home Automation System

P. Sai Ramya & **Durgesh Nandan** 

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Abstract

Security and privacy are the two main required factors for home automation. Nowadays, human can operate devices using the Internet of things. These are sensor-based and network-based devices. At the same time, the user wants his information to be secured while he is accessing the devices through the Internet. In the process of transmission of data, the hackers could easily breach the security even if there is a minimum possibility. In this paper, the security challenges that a user faces while monitoring and controlling devices are discussed. The challenges are resource and energy constraints, unauthorized access to data

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

P. Sai Ramya

**Accendere Knowledge Management Services
Pvt. Ltd., CL Educate Ltd., New Delhi, India**

Durgesh Nandan

Corresponding author

Correspondence to Durgesh Nandan.


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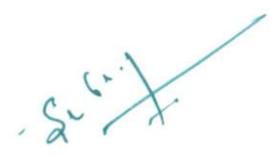
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Soft Computing: Theories and Applications pp 859–867

Analysis of Precision Agriculture Technique by Using Machine Learning and IoT

Y. Sasi Supritha Devi, T. Kesava Durga Prasad, **Krishna**

Saladi & **Durgesh Nandan** 

Conference paper | First Online: **30 June 2020**

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Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1154)

Abstract

IoT is one of the best among the emerging technologies. Its scope has into the field of agriculture in which farmers learn to control his farm using IoT. Due to the lack of continuous human effort and optimal climatic conditions, many crops go waste every year. This paper discusses various methods that prevent manual action and added automatic control of the farm by using machine learning algorithms and IoT sensors. For example, support vector machine (SVR) is the method to check the weather conditions in every interval of time and gives data to the farmer and

S. Sasi

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Author information

Authors and Affiliations

Department of ECE, Aditya Engineering College, Surampalem, India

Y. Sasi Supriya Devi, T. Kesava Durga

Prasad & Krishna Saladi

Accendere Knowledge Management Services

Pvt. Ltd., CL Educate Ltd., New Delhi, India

Durgesh Nandan

Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information


**PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437**

Editors and Affiliations

**Department of Paper Technology, IIT Roorkee,
Roorkee, India**

Dr. Millie Pant

**Graphic Era Hill University, Dehradun,
Uttarakhand, India**

Dr. Tarun Kumar Sharma

NIT Patna, Patna, India

Dr. Rajeev Arya

NIT Patna, Patna, India

Dr. B.C. Sahana

Ryerson University, Toronto, ON, Canada

Dr. Hossein Zolfagharinia

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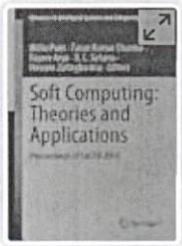
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Soft Computing: Theories and Applications pp 849–857

Study on Real-Time Face Recognition and Tracking for Criminal Revealing

A. Krishna Chaitanya, C. H. Kartheek & Durgesh Nandan 

Conference paper | First Online: 30 June 2020

583 Accesses | 1 Citations

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Abstract

Face recognition describes a surface framework, which is capable of processing image and detection. The proposed paper demonstrates three contributions: the first is to introduce the image representation, known as an integral image, the second application of Ada Boost learning algorithm, and the third is the cascaded framework. This includes observation, bio-metrics and video coding. Here, the primary objective is to implement a real-time system using a field-programmable gate array (FPGA) to track and detect human expression. The expression recognition involves colour-shaped coating separation and image purifying. Moreover,

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**Department of ECE, Aditya Engineering College,
Surampalem, India**

A. Krishna Chaitanya & C. H. Kartheek

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Durgesh Nandan

Corresponding author

Correspondence to Durgesh Nandan.

Editor information

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**Department of Paper Technology, IIT Roorkee,
Roorkee, India**

Dr. Millie Pant

**Graphic Era Hill University, Dehradun,
Uttarakhand, India**

Dr. Tarun Kumar Sharma

NIT Patna, Patna, India

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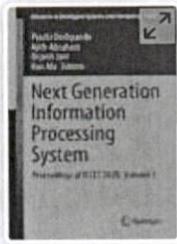
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Next Generation Information Processing System

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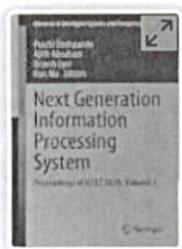
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Next Generation Information Processing System pp 223–232

Performance Analysis of Wireless Sensor Network (WSN)

Chevuri Naga Sridevi, **Murrey Neeladri** & Durgesh Nandan 

Conference paper | First Online: 14 June 2020

268 Accesses | 1 Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1162)

Abstract

In wireless environments, latency and noise must be included in the system plan for continuous control of dispatch vehicles. A compact, wearable, lovable, ergonomically, and at low-cost WLAN node, suitable for detecting a variety of different physical phenomena was the main focus of the research work. It is important to build a large-scale wireless sensor network through an efficient network connection mechanism. For example, ZigBee can assemble a WSN dependent on the bunch tree utilizing a straight-forward system association, address, and steering component. In any case, it cannot offer alluring availability for the hub


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dna damage and melanin content in human skin differing in racial/ethnic origin. *FASEB J.* **17**(9), 1177–1179 (2003)

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, India**

Chevuri Naga Sridevi & Murrey Neeladri

Accendere Knowledge Management Services

Pvt. Ltd., CL Educate Ltd., New Delhi, India

Durgesh Nandan


**PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437**

Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information

Editors and Affiliations

**Department of Computer Engineering, Dr.
Babasaheb Ambedkar Technological University,
Lonere, Maharashtra, India**

Dr. Prachi Deshpande

**Machine Intelligence Research Labs (MIR Labs),
Auburn, WA, USA**

Prof. Dr. Ajith Abraham

**Department of Electronics and
Telecommunication Engineering, Dr. Babasaheb
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**School of Information Science and Engineering,
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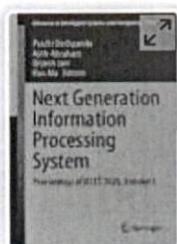
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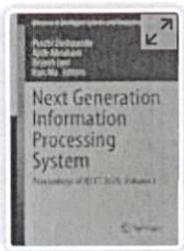
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Next Generation Information Processing System pp 122–131

Analysis on High-Performance Full Adders

K. V. S. S. S. Kavya, [Bujjibabu Penumuchi](#)  & [Durgesh Nandan](#)

Conference paper | [First Online: 14 June 2020](#)

252 Accesses

Part of the [Advances in Intelligent Systems and Computing](#) book series (AISC, volume 1162)

Abstract

This paper contains the performance analysis of various available designs of full adders. It is observed that the full adder is designed for 1 bit, and later it is extended for 32 bits also. The circuit is designed by using 180 nm technology at 1.8 V supply and technology using 90 nm at 1.2 V supply using Cadence Virtuoso tools. High speed, low consumption of power, better power–delay product (PDP), layout area, better propagation delay, these are the performance parameters that are compared for various full adders. The circuit performs better in case of improvement of the full adder circuit in terms of parameters like speed and power.

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-

Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, East Godavari, India**

K. V. S. S. S. Kavya & Bujjibabu Penumuchi

**Accendere Knowledge Management Services
Pvt. Ltd., CL Educate Ltd., New Delhi, India**

Durgesh Nandan

Corresponding author

Correspondence to [Bujjibabu Penumuchi](mailto:Bujjibabu.Penumuchi).

Editor information

Editors and Affiliations

**Department of Computer Engineering, Dr.
Babasaheb Ambedkar Technological University,
Lonere, Maharashtra, India**

Dr. Prachi Deshpande

**Machine Intelligence Research Labs (MIR Labs),
Auburn, WA, USA**


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Prof. Dr. Ajith Abraham

**Department of Electronics and
Telecommunication Engineering, Dr. Babasaheb
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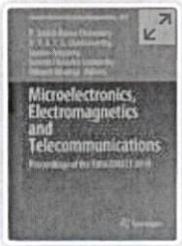
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Microelectronics, Electromagnetics and Telecommunications pp 93–103

A Sensitivity Based Approach for Optimal Allocation of OUPFC Under Single Line Contingencies

Srinivasa Rao Veeranki , **Srinivasa Rao Rayapudi** & **Ravindra Manam**

Conference paper | First Online: 24 June 2020

432 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 655)

Abstract

In this paper, a sensitivity based approach is proposed for optimal allocation of optimal unified power flow controller (OUPFC) under single line contingency to eliminate overloads on transmission lines. The approach is formulated based on ranking index (RI) and performance index (PI). After outage of a branch element, a unitary variation of power flow (PF) in every transmission line is attained through RI. It is formulated to quantify loading level of network after a given outage. Contingencies are organized in descending order depending on the value of RI. Sensitivity factors are attained by

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Author information

Authors and Affiliations

**Department of Electrical and Electronics
Engineering, Aditya Engineering College (A),
ADB Road, Surampalem, Kakinada, India**

Srinivasa Rao Veeranki

**Department of Electrical and Electronics
Engineering, Jawaharlal Nehru Technological
University Kakinada, Kakinada, India**

Srinivasa Rao Rayapudi

**Department of Electrical and Electronics
Engineering, Aditya college of Engineering, ADB
Road, Surampalem, Kakinada, Andhra Pradesh,
India**

Ravindra Manam

Corresponding author

Correspondence to [Srinivasa Rao Veeranki](#).

Editor information

Editors and Affiliations

**Department of Electronics and Communication
Engineering, Raghu Institute of Technology,
Visakhapatnam, Andhra Pradesh, India**

Dr. P. Satish Rama Chowdary

**Department of Electronics and Communication
Engineering, Raghu Institute of Technology,
Visakhapatnam, Andhra Pradesh, India**

Dr. V.V.S.S. Chakravarthy

**Department of Electronics and
Telecommunication Engineering, Universitat**



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Ramon Llull, Barcelona, Spain

Dr. Jaume Anguera

**School of Computer Engineering, KIIT
University, Bhubaneswar, Odisha, India**

Prof. Suresh Chandra Satapathy

**Department of Electronics and Communication
Engineering, Shri Ramswaroop Memorial Group
of Professional Colleges (SRMGPC), Lucknow,
Uttar Pradesh, India**

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Influence of slat and flaps arrangement on the performance of modified Darrieus wind turbine

AIP Conference Proceedings 2200. 020012 (2019); <https://doi.org/10.1063/1.5141182>

P. S. V. V. Srihari^{1,a)}, P. S. V. V. S. Narayana², K. Lakshman Rao³, J. Durga Venkatesh⁴, and P. Rajesh⁵

Hide Affiliations View Contributors

^{1,5}Assistant Professor, Department of Mechanical Engineering, Aditya College of Engineering and Technology, Surampalem 533437, India

^{2,3,4}Assistant Professor, Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

^{a)}Corresponding author: psvvsrihari@gmail.com

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Experimental study on vortex intensification of gravitational water vortex turbine with novel conical basin

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P. S. V. V. Srihari^{1,a)}, P. S. V. V. S. Narayana^{2,b)}, K. V. V. S. Sanath Kumar³, G. Jaya Raju⁴, K. Naveen⁵, and P. Anand⁶

Hide Affiliations View Contributors

¹Assistant Professor, Department of Mechanical Engineering, Aditya College of Engineering and Technology, Surampalem 533437, India

²Assistant Professor, Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

^{3,4,5,6}UC Scholar, Department of Mechanical Engineering, Aditya College of Engineering and Technology, Surampalem 533437, India

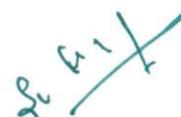
^{a)}Corresponding author: psvvsrihari@gmail.com

^{b)}psvvsnarayana@gmail.com



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P. S. V. V. Srihari^{1,a)}, P. S. V. V. S. Narayana^{2,b)}, G. V. Prasada Rao³, M. Rambabu⁴, and V. S. Surya Prakash⁵

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^{1,4,5}Assistant Professor, Department of Mechanical Engineering, Aditya College of Engineering and Technology, Surampalem 533437, India

²Assistant Professor, Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

³PG Scholar, Department of Mechanical Engineering, Aditya Engineering College, Surampalem 533437, India

^{a)}Corresponding author: psvvsrihari@gmail.com

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AIP Conference Proceedings 2115, 030231 (2019); <https://doi.org/10.1063/1.5113070>

Ch. Tirupataiah^{1,2}, M. V. Sambasiva Rao³, A. Suneel Kumar¹, S. Suresh⁴, T. Narendrudu⁵, G. Chinna Ram⁵, and D. Krishna Rao^{1,a)}

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¹Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar - 522510, A.P., India

²Division of Physics, Department of Science and Humanities, VFSTR Deemed to be University, Vadlamudi-522213, A.P., India

³Department of Physics, Bapatla Engineering College, Bapatla-522101, A.P., India

⁴Department of Physics, Gudlavalleru Engineering College, Gudlavalleru-521356, A.P., India

⁵Department of Physics, Aditya Engineering College, Surampalem-533437, A.P., India

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AIP Conference Proceedings 2115, 030229 (2019); <https://doi.org/10.1063/1.5113068>

G. Chinna Ram^{1,2,a)}, T. Narendrudu², S. Suresh³, A. Suneel Kumar¹, M. V. Sambasiva Rao⁴, Ch. Tirupataiah^{1,5}, and D. Krishna Rao¹

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⁴Department of Physics, Bapatla Engineering College, Bapatla-522101, A.P., India

⁵Division of Physics, Department of Science and Humanities, VFSTR Deemed to be University, Vadlamudi-522213, A.P., India

^{a)}Corresponding author: ramgirajala@gmail.com

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Biofilm Resistant Surfaces and Coatings on Implants: A Review

P S V V S Narayana^{a*}, P S V V Srihari^b

^aAssistant Professor, Aditya Engineering College, Surampalem 533437, India

^bAssistant Professor, Aditya College of Engineering and Technology, Surampalem 533437, India

Abstract

The study of microbes in and around us that have a drastic affect on human health plays a vital role in medicine. Bacterial infections kill millions of people in the world. The structured formation of bacterial communities, known as biofilms, is the major cause of bacterial infections. Nosocomial infections are caused by biofilms due to their pathogenic nature. Biofilms contribute about 80% and 65% to chronic and microbial infections respectively. The adhesion of bacteria to implant surface is the source of biofilm formation. Therefore, the surface characteristics of the implant material dictate the host cells association and response. Biofilms are resistant to antibiotics, disinfectants, and the human immune system. Implants surface modifications play a vital role in improving their biocompatibility and anti-infection properties. Providing antibacterial and adhesion resistant surface coating acts as a novel approach to combat biofilms. This review presents the process of biofilm formation on different implants and the next generation of surface modification techniques to enhance biocompatibility and antimicrobial functionality using surface engineering and nanobiotechnology.

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Keywords: Biofilm; implants; surface modification; antibacterial coatings; antibacterial surfaces

1. Introduction

The replacement, or enhancement, and support of a body structure is done by use of an implant. Orthopedics, cardiovascular surgery, urology, dental, neurosurgery, plastic and reconstructive surgery all utilize implants to some extent. The reasons for their use are varied such as to replace worn, damaged or diseased part of the anatomy; to

* Corresponding author. Tel.: +91-9966-966-053.

E-mail address: psvvs.narayana@aec.edu.in



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Proceedings of International Conference on Computational Intelligence and Data Engineering pp 197–206

Image Enhancement Based on Fractional Calculus and Genetic Algorithm

G. Sridevi  & S. Srinivas Kumar

Conference paper | First Online: 17 April 2019

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Abstract

Image enhancement is an interesting topic in the image processing area. In this work, image enhancement with fractional-order derivative and genetic algorithm is proposed. Fractional-order derivative possesses a non-local property, which is helpful to find the fine edges of the image. In this paper, firstly, fractional-order partial differences are computed in forward x -direction, backward x -direction, forward y -direction, and backward y -direction. These differences are represented based on discrete Fourier transform (DFT). Finally, genetic algorithm (GA) is applied for the fractional-order


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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, AP, India**

G. Sridevi

Department of ECE, JNTUK, Kakinada, AP, India

S. Srinivas Kumar

Corresponding author

Correspondence to [G. Sridevi](#).


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**Department of Computer Science and
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Dr. Nabendu Chaki

**Department of Information Technology,
Lakireddy Bali Reddy College of Engineering,
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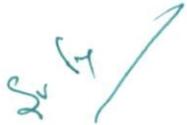
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In the field of medium and high power applications Multilevel Inverter (MLI) topology is an alternative concept. It has the capability to generate the high voltage staircase pseudo-sinusoidal waveform with less distortion and high quality. But it requires more number of Switching Components (SC) with complex PWM (Pulse Width Modulation) strategies hence the cost and size of inverter becomes high. So, in view of this authors investigated a novel asymmetrical transformerless MLI topology of fifteen level inverter is presented in this paper, with an attempt of reduction in overall device count (switches, diodes, capacitors, dc voltage sources, etc..) compared to all existing multilevel inverters. The basic structure and operating modes of proposed MLI is explained clearly. It requires seven power switches (IGBT), three diodes and three DC-bus capacitors are required to generate fifteen level 1- Φ voltage. Furthermore, an efficient PWM technique is implemented with seven reference signals whose magnitude is equal to carrier signal. The performance of proposed MLI is accomplished in terms of Total Harmonic Distortion (THD) at modulation index $M=0.9$. The evaluation of MLI is carried out through MATLAB/SIMULINK environment.

Published in: 2018 Fourth International Conference on Advances in Electrical, Electronics, Information, Communication and Bio-Informatics (AEEICB)

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Department of EEE, AEC, Kakinada, Surampalem, India

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I. Introduction

Now a days MLI's are being accepted to use in power sector due to their improved power rating, less EMI (Electromagnetic interference), better harmonic profile. MLI were invented to overcome problems in two level inverter [1] and are used for medium and high power industrial applications which are Flexible Alternating Current Transmission Systems (FACTS); Renewable Energy Sources (RES), Power Quality (PQ), Drives systems etc., [2].

Authors ^

S. Chaitanya
Department of EEE, Govt Engg College, Bharatpur, India

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Department of Electronics and Communication Engineering, Aditya Engineering College, Andrapradesh, India

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Department of Electronics and Communication Engineering, Aditya Engineering College, Andrapradesh, India

☰ Contents

I. Introduction

Over the last few decades, phenomenal growth has occurred in the electronic industry mainly due to rapid advances in the large-scale system design and integration technologies [1]. For high-performance and other scientific and engineering applications, digital CMOS ICS have been the driving force behind very-large-scale-integration(VLSI) [1]. The use of integrated circuits in high-performance computing, consumer electronics and Telecommunications has grown at a very fast pace. The driving force for the fast development of this field is typically, the required information and computational power of these applications. Although the Ripple carry adder is the simplest multi-bit adder architecture, the carry signal delay will increase significantly when the number of bits is increased to 32 or 64 bits [1].

Authors

Ombeni Kanze Kennedy
Department of Electronics and Communication Engineering, Aditya Engineering College, Andrapradesh, India

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Department of Electronics and Communication Engineering, Aditya Engineering College, Andrapradesh, India

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Ombeni Kanze Kennedy

Department of Electronics and Communication Engineering, Aditya Engineering

College, Andrapradesh, India

☰ Contents

I. Introduction

In wireless communication systems, one of the main objectives is the design of wide-band, or even multiband, low profile, small antennas. Applications of such antennas include, but are not limited to, personal communication systems, small satellite communication terminals, unmanned aerial vehicles, and many more.

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☰ Contents

I. Introduction

Ever since man was able to generate electricity in significant quantity (circa 1880), sufficiently robust insulators have been used for power transportation [1]. Polymer insulators were first developed in the 1950s to replace conventional ceramic insulators. They were not, however, available until the 1960s because of initial design flaws. These insulators are generally constructed of fiberglass reinforced polymer rods and a polymer housing. Developed in Europe, the first polymer insulators produced flashover, tracking, and general line drop problems due to flaws that developed in the polymers that were used. The high voltage insulators eventually succumbed to cracking or shedding of the polymer housing, known as chalking [2].

Authors

S Sudhakar Rasamsetti
EEE Department, Aditya Engineering College(A), India

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Kogge Stone Adder with GDI technique in 130nm technology for high performance DSP applications

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Abstract



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Abstract: In VLSI system, the integrated circuit design has modest importance. The important parameters considered for the design of the circuit are power, delay, area and complexity of the circuit. Binary adder is the fundamental element in the digital circuit design viz., multipliers and digital signal processors. Nowadays, extensive research is focused on reducing the power consumption, and delay in the computation. There are different types of adders, but these are not dominant in terms of propagation delay. The adder with less time for computation is preferred in such a high speed applications. So, in order to optimize the delay, parallel prefix adders like Kogge Stone Adder is preferred. It is the fastest adder which focuses on design time and is said to be a good alternative for high performance applications. The speedy nature of Kogge Stone Adder (KSA) is because of minimum logic depth and restricted fan-out. In KSA, parallel advance will give scope to generate fast carry for intermediate stages. Each level generates Propagation Generation (PG) blocks simultaneously. Among all types of 64 bit adders, a KSA has less delay (11.37ns). In this work, a 64 bit GDI logic based KSA schematic is designed by using Mentor Graphics EDA Tool in 130nm Technology. Performance parameters like delay, average power consumption (at various dimensions of

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Bujjibabu Penumutchi
Dept. of ECE, AEC

Satyanarayana Vella
Dept. of ECE, AEC

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Dept. of ECE, AEC

☰ Contents

I. Introduction

An adder is a digital circuit used to get summation as output from the given inputs. In computers and other kinds of processors these summing networks are used in the arithmetic logic units.

Besides, they are also used to calculate addresses, table indice, increment, and decrements operations. The adders can be constructed for different number representations, such as binary-coded decimal or excess-3. The most common adders operate on binary numbers. Though many adders are available, the selection of adder will be based on parameters, viz. area, power consumption and time of computation

Authors

Bujjibabu Penumutchi
Dept. of ECE, AEC

Satyanarayana Vella
Dept. of ECE, AEC

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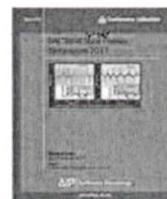
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A. Suneel Kumar¹, T. Narendrudu², S. Suresh³, G. Chinna Ram¹, M. V. Sambasiva Rao¹, Ch. Tirupataiah¹, and D. Krishna Rao^{1,a)}

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¹Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar - 522510, A.P., India

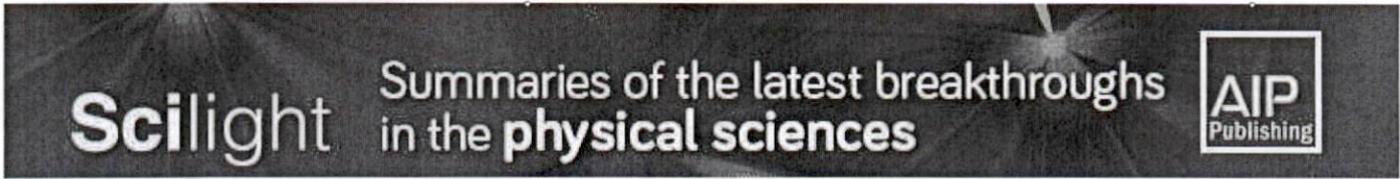
²Department of Physics, Aditya Engineering College, Surampalem-533437, A.P., India

³Department of Physics, Gudlavalleru Engineering College, Gudlavalleru-521356, A.P., India

^{a)}Corresponding author: krdhanekula@yahoo.co.in



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Role of valence state of vanadium ions on structural and spectroscopic properties of sodium lead bismuth silicate glass ceramics

AIP Conference Proceedings 1942, 070016 (2018); <https://doi.org/10.1063/1.5028814>

M. V. Sambasiva Rao^{1,a)}, Ch. Tirupataiah¹, A. Suneel Kumar¹, T. Narendrudu², S. Suresh³, G. Chinna Ram¹, and D. Krishna Rao¹

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¹Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar - 522510, A.P., India

²Department of Physics, Aditya Engineering College, Surampalem-533437, A.P., India

³Department of Physics, Gudlavalleru Engineering College, Gudlavalleru-521356, A.P., India

^{a)}Corresponding author: mvsr.physics@gmail.com


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Abstract: Arithmetic operations play a crucial role in signal processing applications, micro processors, and micro controllers. Multiplication operation is widely used in Digital Signal Processing (DSP) modules like Infinite Impulse Response (IIR) filters, Finite Impulse Response (FIR) filters, Discrete Fourier Transform (DFT), Fast Fourier Transform (FFT), Discrete Cosine Transform (DCT) and etc. Existed design generating partial products using RADIX-4 Modified Booth Encoding (MBE) and partial products addition is done by using Wallace tree approach with Carry Save Adder (CSA). Now we modify above design, RADIX-4 MBE is replaced with RADIX-8 MBE for partial products generation and Wallace CSA tree is replaced with CLA tree for partial products addition. In both designs pipelining technique is involved. Performance comparison between existed RADIX-4 pipelined multiplier and RADIX-8 pipelined multiplier with above addition approaches, the modified method yields considerable moderate critical path delay, area and 35% reduced the power consumption. Modified design is implemented in XILINX 14.7 with FPGA technology XC3S500E-FG320-5.

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Vadapalli SivaCharanKumar
ECE Department, Aditya Engineering College, Andhrapradesh

Penumatchi Bujjibabu
ECE Department, Aditya Engineering College, Andhrapradesh

☰ Contents

I. Introduction

A binary multiplier is an electronic circuit used in digital electronics, such as a computer, to multiply two binary numbers. It is built using binary adders. A variety of computer arithmetic techniques can be used to implement a digital multiplier. Advanced consumer electronics make wide use of Digital Signal Processing (DSP) providing accelerators for the domains of communications, general, military purpose systems. In DSP applications carry out a large number of arithmetic operations as their implementation based on computationally intensive kernels, such as Discrete Fourier Transform (DFT), Fast Fourier Transform (FFT), Infinite Impulse Response (IIR) and Finite Impulse Response (FIR). DSP system performance can be evaluated by the design allocation and architecture of arithmetic units. Recent research activities in the field of optimized arithmetic operations are grown up. Data transfer in different digital modules is done by the arithmetic operations (sub modules). One of the important sub modules is multiplier. Different multiplier designs were introduced to enhancing more efficient implementations of DSP algorithms. Several approaches have been proposed to optimize the performance of the multiplier operation in terms of area, power consumption. This can be done by placing of arithmetic units like multiplier. Many DSP applications can be implemented based on multiplier operation.

Authors ^

Vadapalli SivaCharanKumar
ECE Department, Aditya Engineering College, Andhrapradesh

Penumatchi Bujjibabu
ECE Department, Aditya Engineering College, Andhrapradesh

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Abstract: Cloning (copy-move forgery) is a malicious tampering attack with digital images where a part of image is copied and pasted within the image to conceal the important details of image without any obvious traces of manipulation. This type of tampering attacks leaves a big question of authenticity of images to the forensics. Many techniques are proposed in the past few years after powerful software's are developed to manipulate the image. The proposed scheme is involved with both the block based and feature point extraction based techniques to extract the forged regions more accurately. The proposed algorithm mainly involves in matching the tentacles of same features extracted from each block by computing the dot product between the unit vectors. Random Sample Consensus (RANSAC) algorithm is used to extract the matched regions. The experimental result of the algorithm which is proposed indicates that, it can extract more accurate results compared with existing forgery detection methods.

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Gonapalli Ramu
Aditya Engineering College, Surampalem, Kakinada

S. B. G. Thilak Babu
Aditya Engineering College, Peddapuram, Andhra Pradesh, IN

☰ Contents

I. Introduction

Considering the popularity of digital images, image processing software technology also increased rapidly. This software's made the image manipulation easier. Majority considered passive tempering techniques are cloning, where a part or several regions of image is copied and they are pasted on the chosen regions. This type of Signarity Control is Reading only used with scaling or compressing techniques on the copied part of image and in some conditions to make the forgery more efficient noise is also added with an intention to cover some evidences on the image. The existing techniques to detect the forged regions are block based and feature point based algorithms.

Authors ^

Gonapalli Ramu
Aditya Engineering College, Surampalem, Kakinada

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Aditya Engineering College, Peddapuram, Andhra Pradesh, IN

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A Lossy Compression Approach of Compressing Encrypted Images

S.V.V.D.Jagadeesh¹, K. Raja Sravan Kumar²

^{1,2}Dept. of IT, Aditya Engineering college., Surampalem, E.G.dt, AP, (India)

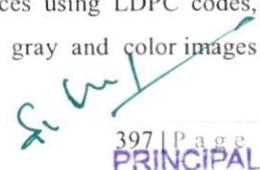
ABSTRACT

In this paper proposing a novel scheme of compressing encrypted images. In the encryption phase, the original pixel values are masked by a modulo-256 addition with nonrandom numbers that are derived from a secret key. After decomposing the encrypted data into a down sampled subimage and several data sets with a multiple-resolution construction, an encoder calculates the subimage and the Hadamard coefficients of each data set to reduce the data amount. Then, the data calculates subimage and coefficients are regarded as a set of bitstreams. Because of the hierarchical coding mechanism, the principal original content with higher resolution can be reconstructed when more bitstreams are received.

Keywords: Hadamard transform, image compression, image encryption, scalable coding.

1. INTRODUCTION

In recent years, encrypted signal processing has motivated to considerable research interests [1]. The discrete Fourier transform and adaptive filtering can be implemented in the encrypted domain based on the homomorphic properties of a cryptosystem [2], [3], and a composite signal representation method can be used to reduced the size of encrypted data and computation complexity [4]. In joint encryption and data hiding, a part of significant data of a plain signal is encrypted for content protection, and the remaining data are used to carry the additional message for copyright protection [5], [6]. With some buyer-seller protocols [7], [8], the fingerprint data are embedded into an encrypted version of digital multimedia to ensure that the seller cannot know the buyer's watermarked version while the buyer cannot obtain the original product on template base process. A number of works on compression encrypted images have been also presented. When a sender encrypts an original image for privacy protection, a channel provider without the knowledge of a cryptographic key and original content may be given to reduce the data amount due to the limited channel resource. In [9], the compression of encrypted data is looked into with the theory of source coding with side information at the decoder, and it is pointed out that the performance of compressing encrypted data may be as good as that of compressing non-encrypted data in theory. Two practical approaches are also given in [9]. In the first one, the original binary image is encrypted by adding a pseudorandom string, and the encrypted data are compressed by finding the syndromes of *low-density parity-check* (LDPC) channel code. In the second one, the original Gaussian sequence is encrypted by adding an independent identically distributed Gaussian sequence, and the encrypted data are quantized and compressed as the syndromes of trellis code. While Schonberg *et al.* [10] study the compression of encrypted data for memoryless and hidden Markov sources using LDPC codes, Lazeretti and Barni [11] present several lossless compression methods for encrypted gray and color images


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REVIEW OF GAS TURBINE BLADES

Mohammad Hussain¹, P.Harichandra Prasad², K Prudhvi Ravikumar³

¹ Assistant Professor, Aditya Engineering College, Surampalem

² Assistant Professor, Aditya Engineering College, Surampalem

³ Assistant Professor, Aditya Engineering College, Surampalem

HIGHLIGHTS:

The different cooling systems used for cooling turbine blade.

Methods adopted for the design of turbine blades.

Loads effecting the performance of the turbine blade.

Different coating materials preferred for protecting the blade.

ABSTRACT

Now a day's gas turbine engines have skills a couple of application ranging from land headquartered vigour vegetation to ship and plane propulsions for the period of the last decades the research carried out on the blades ended in the design of engine with the potential to sustain higher combustion temperatures, as a consequence acquiring a huge augmentation of efficiency and efficiency. These success have been possible more often than not by the use of novel materials and by way of the development of more effective systems. A turbine blade is the individual aspect which makes up the turbine element of a gas turbine. The blades are liable for extracting vigour from excessive temperature, excessive pressure fuel produced by way of the combustion. Extraordinary parameters which impact the execution of blades are coating substances, cooling techniques; channels made on the blade are studied in the paper and the popular stipulations to conquer these challenges like the life time of the blade, immoderate oxidization and erosion, and the thermal stress. The assessment paper gives the transient suggestion related to the turbine blades and explanations to decide upon turbine blade for required purpose.

Keywords: gas turbine blades, cooling system, coatings, blade loads, blade Design.

1.INTRODUCTION

1.1 Cooling systems

1. Gas plants are being viewed to develop as the essential alternative for future power emphasis strategies, because of the reality of their high fuel change successfully and brought down energy new discharge expense the present cooling procedures for high strain gas turbine sharp edges involve a combo of interior cooling (constrained convection impingement) and outside (film cooling) arrangement



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Abstract: Multilevel Inverter is introduced to reduce the switching stress and to obtain the output voltage with multiple steps to achieve the lowest total harmonic distortion (THD) and improved fundamental VRMS. This paper presents comparison of various methods used for reduction of THD and for improving VRMS. An eleven inverter is triggered by using Bipolar Multicarrier Pulse Width Modulation method, sine and Trapezoidal Amalgamated Rectangular (TAR) references with triangular carriers. There are seven various types of triangular carriers. They are, Phase Disposition, Phase Opposition Disposition, Alternate Phase Opposition Disposition, Carrier Overlapping, Phase Shift and Variable Frequency methods. The Performances measure like, THD, VRMS are evaluated for various modulation indices. Simulation is carried out by using MATLAB/SIMULINK. It is observed that sine reference based PWM method provides lower THD, TAR reference based PWM method provides higher fundamental VRMS output voltage.

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B. V. V. L. Kala Bharathi

Department of Electrical and Electronics Engineering Aditya Engineering College, Surampalem Kakinada, India

V. Srinivasa Rao

Department of Electrical and Electronics Engineering, Aditya Engineering College, Kakinada, India

☰ Contents

I. Introduction

In the present day scenario private power producers are increasing rapidly to meet the increased demand. In this process, the existing transmission lines are overloaded and lead to unstable system. Due to the meshed topology of transmission lines and the multiplicity of equipment, the planning and operation of power systems have become very complex. Complex studies have been carried out on normal and abnormal performances of a power system, and also in the present and future functioning of electrical energy systems. One of the abnormal performances of electrical energy transmission systems refers to the occurrence of contingencies. The contingency analysis is very important when future conditions are uncertain. Thus, contingency based planning reflects good energy management practices and helps to create more resilient power systems. Also, it tends to reduce costs, improve energy efficiency, and expand the range of possible solutions compared with more rigid planning.

Authors ^

B. V. V. L. Kala Bharathi

Department of Electrical and Electronics Engineering Aditya Engineering College, Surampalem Kakinada, India

V. Srinivasa Rao

Department of Electrical and Electronics Engineering, Aditya Engineering College, Kakinada, India

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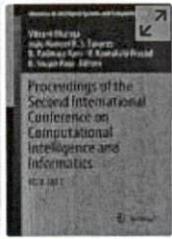
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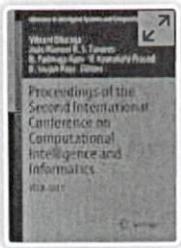
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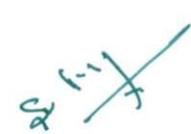
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Nowadays, many software companies face the problem of predicting the accurate software effort. Most of the software projects are failed due to over budget and over schedule as well as under-budget and under-schedule. The main reason for the failure of software projects is inaccurate effort estimation. To improve the accuracy of effort estimation, various effort estimation techniques are introduced. Functional points, object points, use case points, story points, etc., are used for effort estimation. Earlier, traditional process models like waterfall model, incremental model, spiral model, etc., are



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Author information

Authors and Affiliations

K L University, Vaddeswaram, Guntur, India

Ch. Prasada Rao & P. Siva Kumar

Aditya Engineering College, Surampalem, India

S. Rama Sree & J. Devi

Corresponding author

Correspondence to Ch. Prasada Rao.

Editor information

Editors and Affiliations

Department of Electronics and Communication

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of Professional Colleges, Lucknow, Uttar

Pradesh, India

Prof. Dr. Vikrant Bhateja

Departamento de Engenharia Mecânica,

Universidade do Porto, Porto, Portugal

Dr. João Manuel R.S. Tavares

Department of Computer Science and

Engineering, JNTUH College of Engineering

Hyderabad (Autonomous), Hyderabad,

Telangana, India

Dr. B. Padmaja Rani

Department of Computer Science and

Engineering, JNTUH College of Engineering

Hyderabad (Autonomous), Hyderabad,

Telangana, India

Dr. V. Kamakshi Prasad

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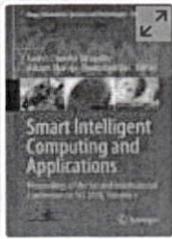
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Smart Intelligent Computing and Applications pp 559–569

PSO Algorithm Support Switching Pulse Sequence ISVM for Six-Phase Matrix Converter-Fed Drives

Ch. Amarendra  & K. Harinadha Reddy

Conference paper | First Online: 02 October 2018

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Abstract

A matrix converter (MC) is an array of power electronic switches that are directly connected from input to output. The six-phase matrix converter (SPMC) is an advanced power electronic converter having three-phase input and six-phase output. The SPMC provides the six-phase output for the six-phase applications. In this paper, the SPMC is operated with the indirect space vector modulation (ISVM). This ISVM is unable to bring the harmonic content below standard value. The value of harmonics should be less than 5% as per the standard IEEE value. The optimization technique is able to reduce the harmonic content in the output



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Space vector control of 5-phase PMSM supplied by 5 H-bridge VSIs. In: Conference on Modeling and Simulation of Electric Machines, Converters and Systems (ElectrIMACS'02), Montreal, Canada (2002)

12. Aware, M.V.: Six-phase inverter operation with space vector pulse-width modulation for a symmetrical single neutral load. *Electr. Power Compon. Syst.* **41**(16), 1635–1653 (2013)
-

Author information

Authors and Affiliations

**Department of EEE, Koneru Lakshmaiah
Education Foundation, Vaddeswaram, Guntur,
AP, India**

Ch. Amarendra

**Department of EEE, Lakireddy Bali Reddy
College of Engineering (A), Mylavaram, Krishan
District, AP, India**

K. Harinadha Reddy

Department of EEE, AEC, Surampalem, AP, India

Ch. Amarendra

Corresponding author

Correspondence to [Ch. Amarendra](#).

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**School of Computer Engineering, KIIT Deemed
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Dr. Suresh Chandra Satapathy

**Department of Electronics and Communication
Engineering, Shri Ramswaroop Memorial Group
of Professional Colleges, Lucknow, Uttar
Pradesh, India**

Prof. Dr. Vikrant Bhateja

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N. Rajanand Patnaik
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Department of EEE, VLITS, Guntur, India

S. Chaitanya
Department of EEE, AEC, Kakinada, India

☰ Contents

I. Introduction

In this modern trend of renewable energy sources, the demand for developing the PV system is increasing day by day because of excellent characteristics in main aspects compared to the other renewable sources. In present days PV installations are increasing exponentially mainly with support of government to develop the green energy concept. One of the foremost vital varieties of PV installation is that the grid connected electrical converter configurations. These grid connected PV systems is classified from two main points: PV cell and electrical converter configurations Fig. 1. The PV cell should be classified into five groups: string, multi-string, AC-cell, AC-module and centralized technology.

Authors ^

N. Rajanand Patnaik
Department of EEE, VLITS, Guntur, India

Y. Ravindranath Tagore
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Abstract: A relatively recent innovation in the domain of digital filtering has been the introduction of signal processing applications with effective power utilization. No scope towards the effective and efficient architecture realization with existing part of literature, and hence investigation is made and is confined with cascade form of filter design. In this paper, architectures are realized based on common set of specifications to arrive at the high performance recursive filter for low power applications using Xilinx System Generator. Infinite Impulse Response (IIR) filters can be realized in many forms those are Direct form-I, Direct form-II, Cascade, parallel form. All these structures provide a space for selection of an appropriate architecture for reduction of power consumption and improvement in speed of digital filters. In this particular work, a 5th order low pass IIR filter is realized in Direct form-I, Direct form-II, Cascade form (Direct form-I/ Direct form-II) as an example of the methodology in a Xilinx FPGA device. Also corresponding power analysis was performed and finally concluded that cascade (Direct form-I) realization is the best technique to implement higher order IIR filters when power is a main constraint, cascade (Direct form-II) technique is best with area and speed as constraints.

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P. Bujjibabu

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N. Sravani

Department of ECE, Aditya Engineering College, Andhra Pradesh, India

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I. Introduction

NEED FOR LOW POWER: Reduction of power consumption and dissipation [11] [12] is significantly important for all high performance systems since it is desirable to maximize the run time with minimum requirements in size, battery life and weight of batteries. That's why the technology with low power consumption has become a major subject in today's electronic world.

Authors

P. Bujjibabu

Aditya Engineering College, low power VLSI Design ()

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Abstract:
The evolution of multi-feature portable devices with high speed processors and with drastic growth in component density turns the designer attention towards power aware design schemes. In low power VLSI designs an adaptive filter can obtain a reduction in terms of area and power consumption. A system with a linear transfer function controlled by variable parameters and a means to adjust those parameters according to an optimization algorithm is called adaptive filter. The Least Mean Square (LMS) filter is one of adaptive filters type which is used commonly, because of its simplicity and also because of its satisfactory convergence performance. The current IIR adaptive filter uses LMS to reduce area-delay product and energy-delay product. To reduce this delay one can implement filter in pipelined structure. Shift-add tree efficiently minimizes the critical path and silicon area without increasing the number of adaptation delays. The structure of IIR adaptive filter designing is done by using two main blocks: IIR block and new coefficients block (weights block). Weights block consists of series of partial product generators and shift/add tree. Partial product generators has 2 to 3 decoders and AND/OR cells. Weights block performs multiply accumulate operations. Filter block depends upon the new filter coefficients obtaining from weights block. The proposed filter is designed in MATLAB (2013a) for its performance characteristics and its constraints are verified using XILINX (ver4.7) implemented on FPGA.

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K. Sirisha

Department of ECE, Aditya Engineering College, Andhra Pradesh, India

☰ Contents

I. Introduction

DIGITAL filters are indispensable elements in signal processing and find numerous applications in industrial electronics like, power system, automatic control, and communications engineering. At the time of its origin, it was not interjecting in the literature. With the eloquence advancements in digital technologies, digital filters began to offer cognizant puritanical solutions to many problems of the past.

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P. Bujjibabu

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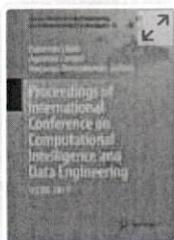
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Proceedings of International Conference on Computational Intelligence and Data Engineering pp 293–300

Handwritten Symbol Recognition Using Hierarchical Shape Representation Model Based on Shape Signature

M. Raja Babu , T. Gokaramaiah & A. Vishnuvardhan Reddy

Conference paper | First Online: 21 December 2017

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The Signature represents visual object shape 2D contour in 1D to recognition shape of the objectQuery. This 1D shape representation translated into Centroid Distance Histogram (CDH) Gokaramaiah et al. (Comput Graph Image Process 25:357–370, 1974 [16]) to achieve invariant transformations such as translation, scale, rotation, flip. The CDH representation performs well in content-based image retrieval system with low computational complexity and this representation



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19. O. Starostenko, C. K. Cruz, A. Chavenz-Aragon, and R. Contreras. A novel shape indexing method for automatic classification of lepidoptera. *IEEE Computer Society*, 2007.
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Author information

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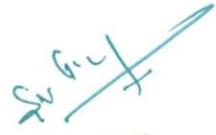
Department of Information Technology, Aditya Engineering College, Surampalem, East Godavari, 533437, India

M. Raja Babu

Department of Computer Science and Engineering, Hyderabad Institute of Technology and Management, Gowdavally, Hyderabad, 501401, India

T. Gokaramaiah

Department of Computer Science and Engineering, G.Pulla Reddy Engineering College


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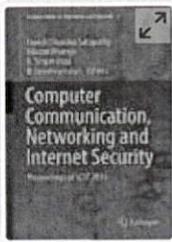
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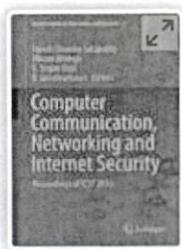
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Computer Communication, Networking and Internet Security pp 283–290

Novel Hash Based Key Generation for Stream Cipher in Cloud

K. DeviPriya  & **L. Sumalatha**

Conference paper | First Online: 04 May 2017

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Abstract

Cloud Computing is an advanced technology which provides services to the users on rental basis. Cloud minimizes the installation cost of hardware, software, applications setup at client side and these services are available at cloud server, accessed by any one, any time, any place through the internet. Apart from the benefits one big challenge faced by the cloud is security problem as the data and resources are not under the control of data owner. Security techniques are required to protect data from the unauthorized access. In this paper, we proposed simple efficient stream cipher to protect information which is stored in the cloud. Also a hash based key is generated for encryption. The


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Author information

Authors and Affiliations

**Department of Computer Science &
Engineering, Aditya Engineering College,
Surampalem, AP, India**

K. DeviPriya

**Department of Computer Science &
Engineering, UCEK, JNTUK, Kakinada, AP, India**

L. Sumalatha

Corresponding author

Correspondence to K. DeviPriya.

Editor information

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**Anil Neerukonda Inst. of Tech. & Sci., Prof.,
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**Professional Colleges (SRMGPC), Shri
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Vikrant Bhateja

**CMR Technical Campus, Prof. & Head, Dept. of
Comp. Sci. & Engg CMR Technical Campus,
Hyderabad, India**

K. Srujan Raju

**DVR & Dr.HS MIC College of Technology,
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Su (M)
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**Technology, Kanchikacherla, Andhra Pradesh,
India**

B. Janakiramaiah

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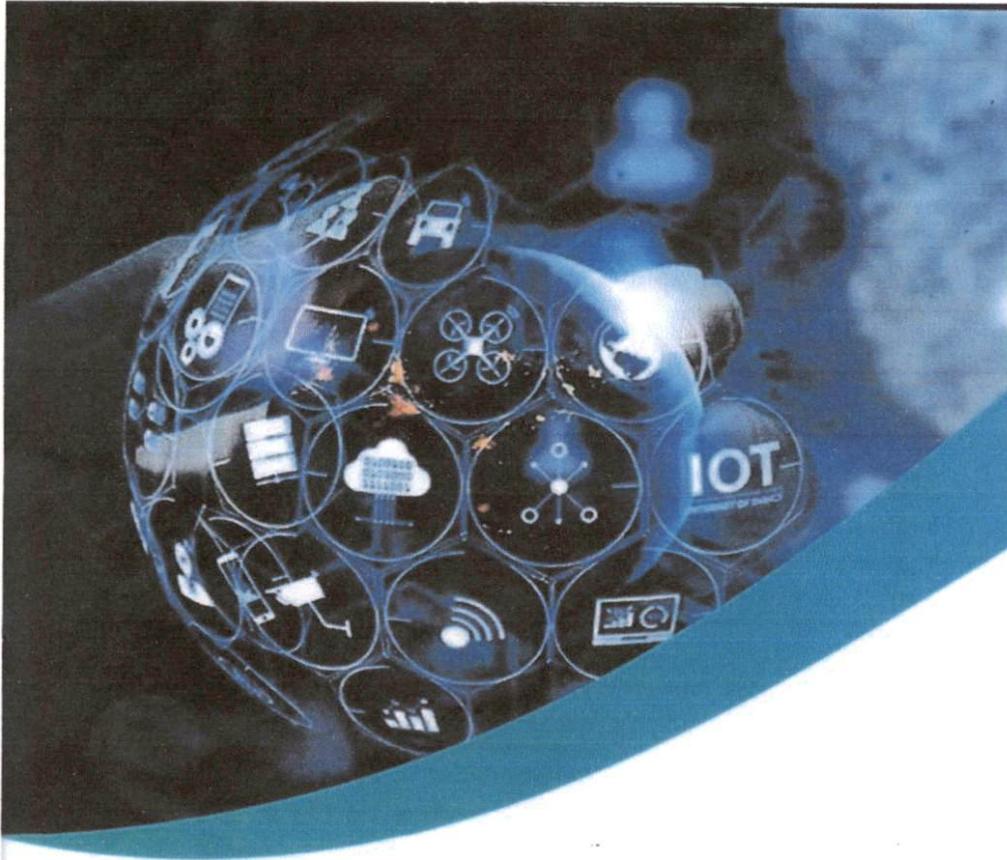
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AUTHORS PROFILE



Dr.M.Kandan Working as an Associate Professor in the Department of Computer Science and Engineering at Aditya Engineering College, Surampalem, India affiliated to Jawaharlal Nehru Technological University Kakinada, Kakinada, East Godavari District, India. He Completed his graduation in Computer Science and Engineering at Mallam Engineering College, Tindivanam, Tamilnadu, India. He secured Master of Technology in Information Technology at Sathyabama University, Chennai, Tamilnadu, India. He had been awarded Ph.D. in the field of Cloud Computing at Anna University, Chennai, India. He is in teaching profession for more than 15 years. He has presented number of papers in National and International Journals and Conference and Symposiums. His main area of interest includes Cloud Computing, Machine Learning and Web Technology.



Dr.T.M.Nithya, Assistant Professor of Computer Science and Engineering from K.Ramakrishnan College of Engineering, Tiruchirappalli, Tamil nadu known for my leadership qualities and innovative approaches towards the academic front. I have completed my Undergraduate programme in Computer Science and Engineering at M.Kumarasamy College of Engineering, Karur. I received my Post Graduate programme in the same discipline from Oxford Engineering College, Trichy. Recently, I have been awarded my doctoral degree from Anna University, Chennai. I have over 12.9 years of teaching experience in which I have gained knowledge in terms of technical skills, software testing, Software Testing, Artificial Intelligence and Machine Learning. I have published around 15 research articles in various reputed journals like International Journal of Advanced Research in computer science and software engineering, International Journal of Advanced Science and Technology etc., To mould my inner abilities, I have attended many conferences, workshops, training programmers which eventually made me to convene these kinds of programmers in my college. Being recognized as the best HoD in the year 2014, I have published two patents as my credit and I have received many recognitions and awards such as Working Women Achievers Award Best Women Engineer, Best Teaching Faculty, and Best Coordinator etc., which strengthened my leadership skills. I am the Active member in CSI,IEI My career achievements are the sure eyewitness of my caliber. I have produced 100% results in Anna University examinations for three consecutive years for UG and PG programmers of my discipline.



Mrs.K.Deepa received the B.E. degree in Computer Science and Engineering from Anna University, Chennai, Tamil Nadu, India in 2006, M.E. degree in Computer Science and Engineering from Anna University, Chennai, Tamil Nadu, India in 2010. She has teaching experience of about 12.5 years. Presently working as Assistant Professor - Department of Computer Science & Engineering in M.Kumarasamy College of Engineering, Karur. She has published 12 papers in the reputed international journals, national and international conference. Her area of interest is Big Data, Machine Learning, Deep Learning and Web Programming.



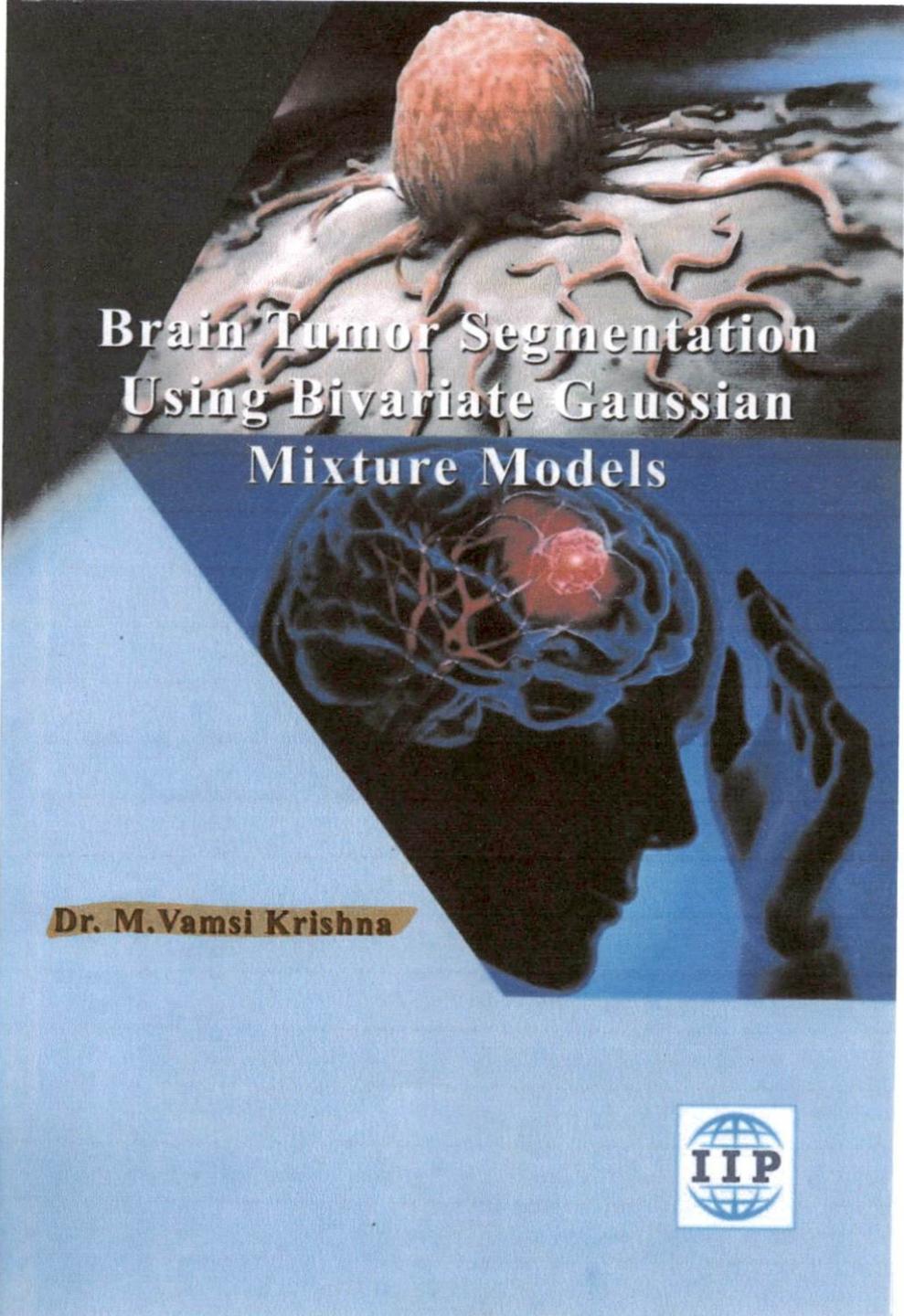
Mr. Dillip Narayan Sahu Working as Lecturer in the Department of MCA, School of Computer Science at Gangadhar Meher University (GMU). He graduated in Physics Honours at Sambalpur University, Sambalpur, India. He secured Master of Computer Application and Master of Technology in Computer Science at Sambalpur University, Sambalpur, India. He secured M.Phil. Degree in Computer Science at MATS University, Chattisgarh, India. He is Pursuing Ph.D. in the field of Machine Learning. He is in teaching profession for more than 10 years. He has presented and published number of papers in National and International Journals, Conferences and Symposiums. His main area of interest includes Artificial Intelligence, Machine Learning, Analysis and Design of Algorithms, Data Science and Internet of Things.

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The cover art is a composite image. The top half shows a 3D rendering of a brain tumor with a reddish, textured surface and several branching, root-like structures extending from its base. The bottom half shows a blue-tinted silhouette of a human head in profile, facing right, with a glowing red brain inside. The background is a gradient of blue and black.

Brain Tumor Segmentation Using Bivariate Gaussian Mixture Models

Dr. M.Vamsi Krishna

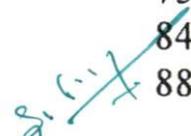


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Dr. G. N. J.

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About Author



I, have around 20 + years of teaching experience in various engineering colleges, universities. I have pursued my MCA from IGNOU, later completed my MTech in Computer Science from Sam Higginbottom University of Agriculture, Technology And Sciences (formerly Allahabad Agricultural Institute Deemed University (AAIDU)) and then also completed my MTech in the stream of Artificial Intelligence and Robotics (AI & R) from Andhra University. Later Completed my Doctoral Degree from Centurion University of Technology and Management (CUTM) in the area of Medical Image Processing. I have around 90 + publications in various national and International Journals. Also have around 15 publications in national and international Conferences. Later, started guiding research scholars from various specializations like Cloud Computing, Medical Image Processing, Data Science etc. Currently, I have successfully guided 10 scholars and have been awarded with Doctoral Degrees. I also have around 5 Scholars who are currently doing research under my guidance.

I am awarded with,

- Received International Best Research Award in the area of Cloud Computing – 2019
- Received Best Researcher Award for 2020 by Academic Branding Awards, Bangalore.
- Received Best Researcher Award for 2020 by CEGR
- Received Young Researcher Award for 2020 by Institute of Scholars
- Received International Scientist Award 2021 on Engineering, Science and Medicine.

I am also member of professional bodies like:

- Member, IAENG (International Association of Engineers)
- Fellow Member, International Society for Research and Development.
- Professional Member, IFERP (Institute for Engineering Research and Publication)
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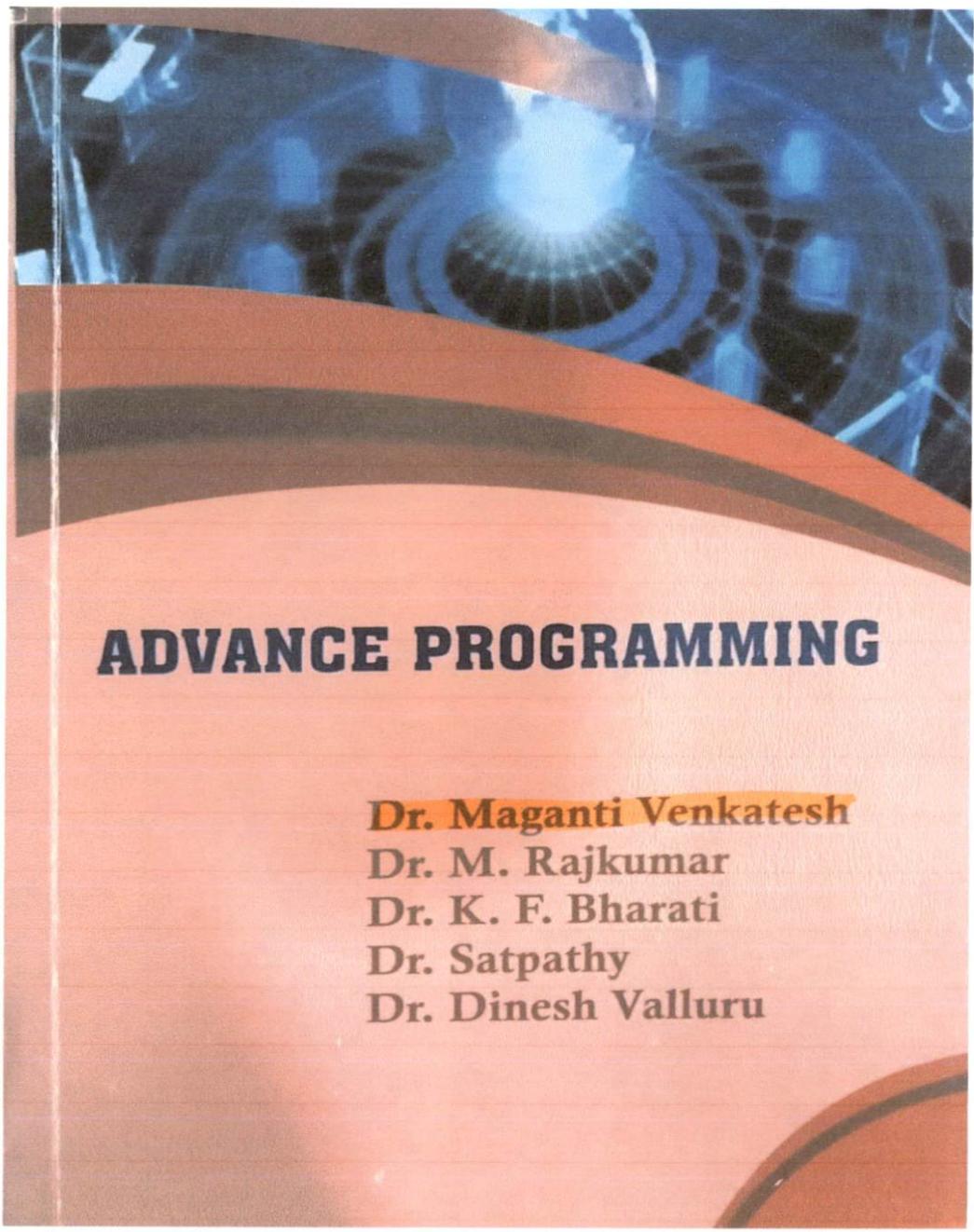
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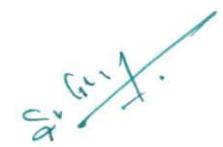
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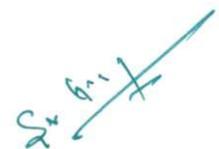
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About the Authors



Dr. Maganti Venkatesh has completed B.Tech in Computer Science & Information Technology from Kakatiya Institute of Engineering and Technology, Affiliated to JNTUK, Andhra Pradesh, in 2005. Completed M.Tech in Computer Science and Engineering from Sasi Institute of Technology & Engineering, Affiliated to JNTUK, Andhra Pradesh, in 2011. Awarded Ph.D. by Hindustan Institute of Technology & Science, Deemed to be University, Puducherry, Chennai. **Currently working as Associate Professor of Aditya Engineering College, Surampalem, Permanently Affiliated with JNTUK, Kakinda, East Godavari District, Andhra Pradesh.** He has a total of 17 years of teaching experience. He has publications in Scopus; SCI-indexed Journals. He presented at National and International conferences. His area of Interest is Educational Data Mining, Machine Learning, Optimization Algorithms. He has sound knowledge in Programming Languages like C, Java, Python, Spring Boot, Web application development technologies. He is also a technical trainer, trained freshers in IT sector, and trained several engineering students for their campus interviews.



Dr. M. Rajkumar, Professor, Department of Computer Science and Engineering, Saveetha School of Engineering, Saveetha Institute Of Medical and Technical Sciences, Chennai. Have a total teaching experience of 18 years. My area of research is Wireless Networks and Mobile Ad-Hoc Networks. My areas of Interest also include Operating Systems, Mobile Computing, Cloud computing, Published 23 papers in International Journals and 18 papers in International/National conferences. Published 4 Indian Patents; he authored a textbook on Fundamentals of computing. Delivered Expert Lectures in various Institutions and universities; completed B.E. (CSE) in 2003 from Dr.M.G.R.Engineering College, Chennai. M.Tech (CSE) in the year 2007 from Dr. M.G.R University, Chennai, and Ph.D. in 2020 in Anna University, Chennai. Life Time Member of CSI, ISTE, IAENG.



Dr. K. F. Bharati, Associate Professor, Department of CSE, JNTUACEA, Anantapuramu, She has done B. Tech in Comput. Science and Engineering from University of Gulbarga in 1993. M. Tech from Visvesvariah Technological University, Belgaum in 2005. Ph.D from Jawaharlal Nehru Technological University, Anantapuramu (JNTUA) in 2014. She was awarded with Rastriya Gaurav Award "for Meritorious Services, Outstanding Performance and Remarkable Role by "India International Friendship Society" and "Adarsh Vidya Saraswathi Rashtriya Puroskar" by Global Management Council. "Dr APJ ABDUL KALAM Best Faculty Award" by Bose Science Society. She has been Published No. of International Journals and attended No. of International Conferences and Workshops. She has interaction with other institutions/universities as a resource person for FDPs, STPs and seminars on her areas of interests such as Data mining, Database Management Systems, Programming, OOAD, etc.



Dr. Satpathy post-graduated in Computer Science & Engg, Applied Mathematics, MBA (HRD), and Industrial Mathematics from National Institute of Technology – Rourkela and Symbiosis and other leading Institutes. He has received 2 Ph.Ds - one in Computational Mathematics from Utkal University and other in Computer Science & Engg from Fakir Mohan university . He has also received Post-doctoral from National Institute of Technology – Rourkela and D. Sc in Computational Fluid Dynamics from FM University . So far international credential is concerned , Dr. Satpathy was awarded with Ph.D. in Computer Sc. & Engg. From Cosmopolitan University , D.Sc. in computer Sc. & Engg. From International University and Grand Ph.D. in Computer Sc. & Engg. From West Coast University .



Dinesh Valluru: He received Ph.D. from Anna University, Chennai. The research area of Interest is Computer Vision, Medical Image Processing, and Big Data.

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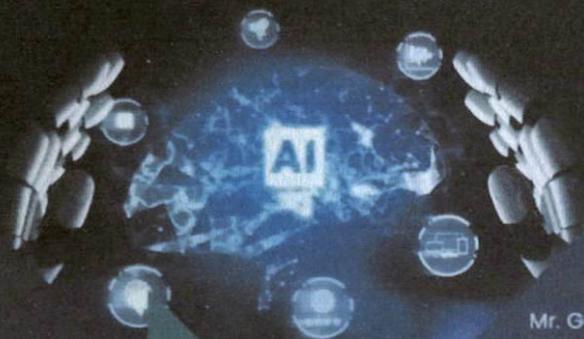
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Author's Profile



Mr. Gunawan Widjaja is a multitasking person. He had a Bachelor in Pharmaceutical Science (BPharm), a Master of Public Health (MPH), and a Master of Hospital Administration (MHA) from the Postgraduate Study Faculty of Public Health, Universitas Indonesia. He also graduated from the Faculty of Law, obtained his LL.M, and completed his Doctor of Philosophy (Ph.D.) from the same University. He also holds a Master in Management degree majoring in Finance. Currently, he teaches at the Postgraduate Study Faculty of Public Health Universitas Indonesia and Postgraduate Study Faculty of Law Universitas Krisnadipayana. He has written about 50 books and many papers in national and international journals, including Scopus Indexed Journals, as well as reviewed them. He actively participated in many seminars, symposiums, and conferences, and also acts as an arbitrator in many International Arbitration centers such as SIAC, SHAC, and GDI.



Ms. Priyanka is working as an Assistant Professor, Electronics engineering in Rajkya Engineering College, Manguri. She received her M.Tech in Electronic System & Communication from NIT Rourkela. Her specialization is leaky integrated fire neuron, low power devices, FinFETs, MOSFETs, spiking neural networks, artificial intelligence, nanoelectronic devices, VLSI design etc. She has more than 5 years of experience of teaching and research. She has published more than 8 SCI Journal out of which 2 are published in IEEE TRANSACTION and rest in ELSEVIER and SPRINGER Journals. She conducted various Faculty Development Programs and Webinars.



Dr. S. BASKAR received his B.E. (Electrical & Electronics Engineering) from Annamalai University and M.Tech (Power Electronics) from Vellore Institute of Technology, India. He has completed his Ph.D. (EEE) in the specialization of FACTS controllers from Annamalai University. He has more than twenty one years of experience in the fields of teaching, research and academic administration. He is currently working as a Professor in the Department of Electrical and Electronics Engineering, at Veltech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, India. His research interests include Component minimized Power electronic converters and Intelligent control techniques, Control and Modelling of FACTS Controllers and its application to power system. He has completed one International Indo-France joint research Project funded by Indo-France Collaborators, Government of India (CEFIPRA). Four scholars are awarded the Ph.D. degree under his guidance. He has registered two patents. He has published more than eighty papers in national, international Scopus indexed journals and conferences. He participated in many seminars, Faculty Development programs, and workshops and also organized many Faculty development programs and national conferences.



Mr. Huaman Roman Yessi Luis Appointed Professor in the Associate category at the National University of Frontera - Sullana since 2019. Appointed Professor in the Auxiliary category at the José María Arguedas Andahuaylas National University (2013 - 2019). Bachelor of Physical Sciences Mathematics with a mention in Mathematics from the National University of San Cristóbal de Huamanga. Master's Degree in University Teaching and Educational Management. Studies completed in the Master in Mathematics Education at the National University of Education Enrique Guzmán y Valle. Student of the Doctorate in Education. Teacher in the area of Mathematics since 2011 at various National Universities. National and international book publisher. Researcher in the area of ICT, Teaching, Learning, etc. International, National and Regional Speaker.



Dr. Venkatesan Hanram has completed his BHMS, MD (Hom) (Practice of Medicine) and PhD (Hom) at Vinayaka Mission's Homoeopathic Medical College and Hospital, Salem, Tamilnadu, India. He was the 1st Rank Holder in both BHMS (2007) & MD (Hom) (2010) and was awarded with Gold medals for the same. He has additionally acquired Post Graduate Diploma in Bio-statistics at Madurai Kamaraj University on 2015. He has joined as Assistant Professor on 2010 and currently working as Professor and Head, Department of Practice of Medicine at the same College. He is also serving as PG Guide, PhD Supervisor and Research Coordinator of the Institute. He has been the Principal Investigator of 05 Research Projects. He has more than 20 Peer Reviewed and Indexed Publications. He has also Presented Various Research Papers at National and International Conferences and Seminars. His areas of interest are Medical Research Methodology, Design of Experiments & Research Writing.



Dr. K.V.S Ramachandra Murthy obtained B. Sc. (Engineering) and M. Tech from NIT, Jamshedpur, India in the years 1994 and 2002 respectively and received his Ph. D. from JNTUK, Kakinada in 2013. He had 4 years of industrial experience and 20 years of teaching experience. He is working as Professor in the Department of Electrical & Electronics Engineering and Dean, Aditya Group of Engineering Colleges, Surampalem. He received Best Teacher Award from JNTUK, Kakinada in the year 2014. He is also associated with Aditya Global Business Incubator, an implementing agency for two Coir Clusters worth 7.5 Crore sanctioned by Ministry of MSME, Government of India. He also led a team of faculty and students to carry out developmental activities at the adopted villages for which Aditya Engineering College has received 'Utkushta Samsthan Viswakarma Award' by AICTE in the year 2019. His area of interests is Power Systems.

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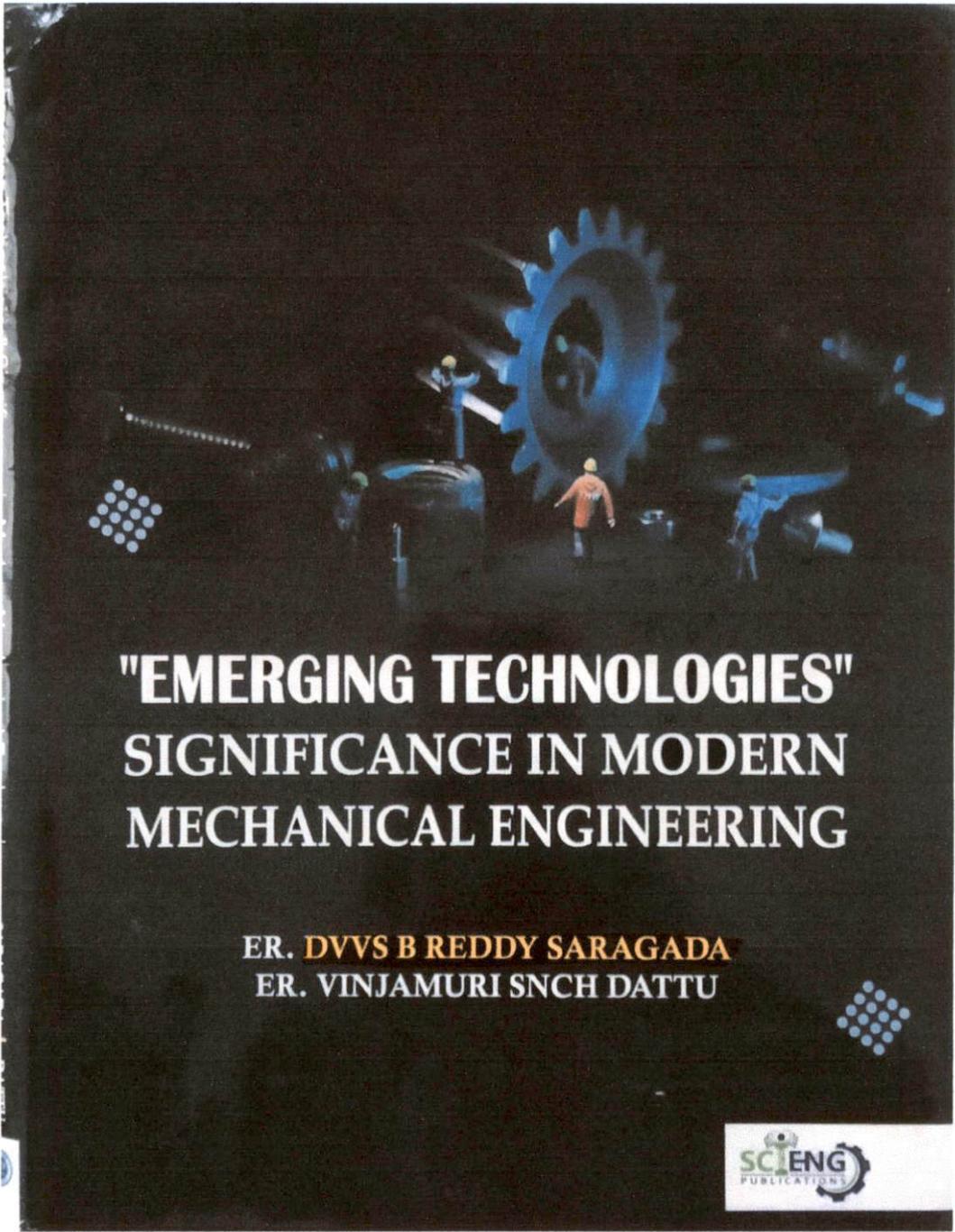


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**"EMERGING TECHNOLOGIES"
SIGNIFICANCE IN MODERN
MECHANICAL ENGINEERING**

ER. DVVS B REDDY SARAGADA
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About the Editors



ER. DVVS B REDDY SARAGADA, M.Tech , (Ph.D), Senior Assistant Professor, Department of Mechanical Engineering, Aditya Engineering College(A), For more than a decade, the author has been active in research for unique ways to examine innovative engineering. He has over 12 years of teaching experience in mechanical engineering. He is currently employed as a Senior Assistant Professor in the Department of Mechanical Engineering at Aditya Engineering College (A), Surampalem, Andhra Pradesh. He is a Doctoral candidate at Lincoln University College in Malaysia. Design, Thermal Engineering, Manufacturing Technology, and Automobile Engineering are

among his areas of study and specialization.

He obtained over 20 International Journal articles. He has mostly presented his findings and attended 25 national and international conferences. He attended several workshops all around the world as part of his research views. International Award Conference on Multidisciplinary Research and Latest Innovation - IARDO Award for Distinguished Educators 2018.

In the year 2020, he earned a Prestigious Young Scientist Award from IJEMR- ELSEVIER SSRN Research Awards in India. In addition to his research talents, he has 4 patents with IP India in Automobile and Design.



ER. VINJAMURI SN CH DATTU, M.Tech (CSE), M.Tech (Thermal Engg), (PhD) Associate Professor, Department of Mechanical Engineering, Aditya Engineering College (Autonomous) For more than a decade, the author has been active in research for unique ways to examine innovative engineering. He has over 16 years of teaching experience in mechanical engineering and computer science and engineering.

He is currently employed as an Associate Professor in the Department of Mechanical Engineering at Aditya Engineering College (A), Surampalem, Andhra Pradesh. He is an active research scholar candidate at Lincoln

University College Malaysia. Thermal Engineering, IC engines Alternative fuels, and Automobile Engineering are among his areas of study and specialization. He obtained over 16 International Journal articles. He has mostly presented his findings and attended 9 international conferences and 7 national conferences. He attended several workshops all around the world as part of his research views. Received Excellent Professional Achievement Award (Class for contributions in the field of Engineering & Technology. Honoured by the Society of Professional Engineers (India) in the year 2016.

His achievements are 1. Consultant Editor for Engineering Today, India & Malaysia, 2. Technical Reporter for the Technology World (INDIA), 3. Consulting Engineer for Journal of Automotive Mechanical & Aero Space Eng. Research 4. Technical Consultant for Journal of Engineering Technology & Management Sci. 5. Technical Consultant for Journal of Engineering Technological Research. 6. Associate Editorial Board Member for IJRI Publishers, India. 7. Management Network Expert for Ch-egg India. 8. Acted as Co-PI for MODROBS of CNC LAB worth 13.5 lacks at Pragati Engineering College, during the period 2013 to 2014 (Project cost Rs 13.5 Lacks). Sponsored by AICTE, New Delhi- India.

In the year 2021, he received an internal academic award for outstanding performance in teaching organized by the universal group of education in collaboration with the I.R.D.O Conference world. To his research talents, he has 4 book chapters and 3 patents with IP India in Automobile and Design. To his research credit, he guided 20 UG projects and 12 PG projects. He is a life member of professional bodies like LMISTE, ISME, IE-I, IAENG & WARCO.



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FOUNDATION FOR NANO SCIENCE, NANO BIOTECHNOLOGY AND ITS MEDICAL APPLICATIONS

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Dr. S. V. G. V. A. PRASAD





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AUTHORS PROFILE



Dr. Chennu MM Prasada Rao working as a Professor and Head in the Department of Pharmaceutical chemistry at School of Pharmacy, Raffles University, Neemrana. He graduated in Pharmacy at, ML college of Pharmacy City Singarayakonda, Andhra Pradesh, India. He secured Master of Pharmacy in Pharmaceutical Chemistry at Annamalai University City Chidambaram, Tamil Nadu, India. He secured in Pharmaceutical Sciences at Jawaharlal Nehru Technological University, Kakinada, City Kakinada, Andhra Pradesh, India. He is in the field of Pharmacy, Professor and Head in the Department of Pharmaceutical chemistry at School of Pharmacy, Raffles University, Neemrana, Rajasthan, India. He is in teaching profession for more than 14 years. He has presented 56 papers in National and International Journals, Conference and Symposiums. His main area of interest includes green synthesis of drug molecules, microwave assisted synthesis of drugs and their biological screening, designing and Insilco analysis of small organic molecules and molecular docking studies, Method development and validation of drugs and formulations using modern analytical techniques.



Dr. K. Anandan working as an Assistant Professor in the Department of Physics at Academy of Maritime Education and Training (AMET) – Deemed to be University, East Coast Road, Kanathur, Chennai – 603 112, India. He was started his teaching profession in year of 2015 at AMET. He secured Master of Science in Physics at Presidency College, Chennai – 05. He received his Ph.D (Physics) degree in the field of Nano science from University of Madras, Chennai in year of 2015. His main area of interest is Nano Photo-catalysis and doing research in the same field. He has presented his research work in more than 40 national/international conferences and published more than 35 research articles in the reputed journals. He is member in many professional bodies such as Indian Laser Association (ILA), Scientific and Technical Research Association (STRA), Indian Association of Physics Teachers (IAPT) and etc.



Dr. G. Chinna Ram working as an Associate Professor in the Department of Physics at Aditya Engineering College. He graduated in Aditya Degree College, Kakinada, Andhra Pradesh, India. He secured Master of Science in Physics at Andhra University, Vishakhapatnam, Andhra Pradesh, India. He secured Ph.D. in Physics at Nagarjuna University, Guntur, Andhra Pradesh, India. He is in teaching profession for more than 13 years. He has presented 18 papers in National and International Journals, Conference and Symposiums. His main area of interest includes Rare earth doped glasses and Nano materials and their applications.



Dr. S.V.G.V.A. Prasad working as a Professor in the Department of Physics at Pithapur Rajah's Government College(A), Kakinada, East Godavari, Andhra Pradesh. He secured Master of Science in Physics at Andhra University, Viskhapatnam, Andhra Pradesh, India. He secured Master in Philosophy in Physics at Acharya Nagarjuna University, Guntur, Andhra Pradesh, India. He secured Ph.D. in Material Science at Acharya Nagarjuna University, Guntur, Andhra Pradesh, India. He is in teaching profession for more than 24 years. He has presented 50 papers in National and International Journals, Conference and Symposiums. His main area of interest includes Material Science and Ultrasonics.



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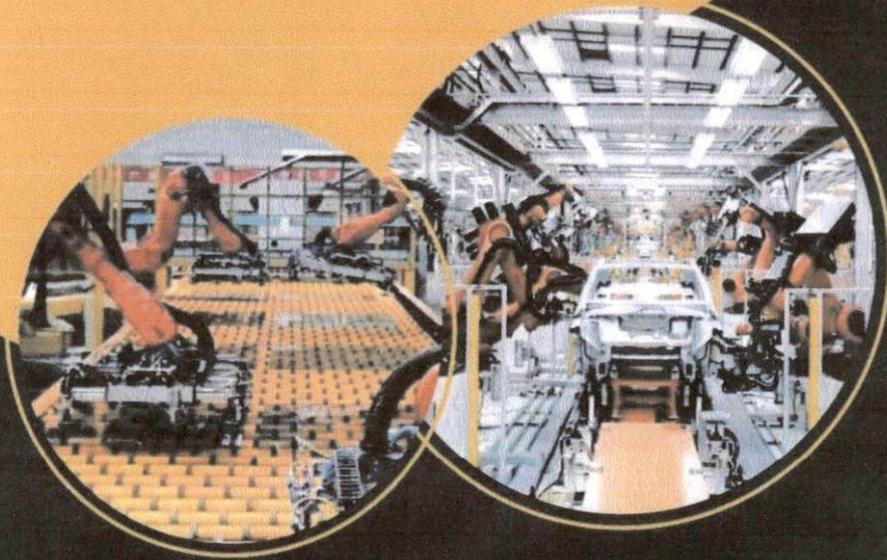
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ABOUT THE BOOK

This book addresses issues essential to unconventional machining processes, covering all modern machining processes such as mechanical processes, electrochemical and chemical metal removal processes, and thermal metal removal processes. The text continually emphasizes fundamentals and complete mathematical analysis of the processes as well as advanced applications of advanced manufacturing processes and operations. Each of the modern machining processes is discussed in a separate chapter, with the most up-to-date information and an emphasis on the economics of processes. In order to make the concepts easier to understand, a variety of applications are discussed as well as several numerical problems are worked out. The material is written mainly for students in mechanical, materials science and engineering, automobile engineering, aircraft engineering and industrial and production engineering programs.

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The Flexible AC Transmission System (FACTS) controllers play a vital role in power system security enhancement. However, due to high capital investment, it is necessary to place these controllers at optimal locations in the power system. This Thesis presents comparison of various methods used for optimizing the location of Thyristor Controlled Series Compensators (TCSC) and Thyristor Controlled Phase Angle Regulators (TCPAR), Unified Power Flow Controller (UPFC), Interline Power Flow Controller (IPFC), and Optimal Unified Power Flow Controller (OUPFC). Four indices obtained in this Thesis are, line loss sensitivity indices, total system loss sensitivity indices, real power flow performance index and ranking index. A generalized approach has been discussed for determination of optimal locations for placement of Flexible AC Transmission Systems (FACTS) devices in this book. The objective is to reduce real power loss and overloading of the lines in the Power system. An objective function is formulated and a detailed mathematical model is presented in terms of system parameters.

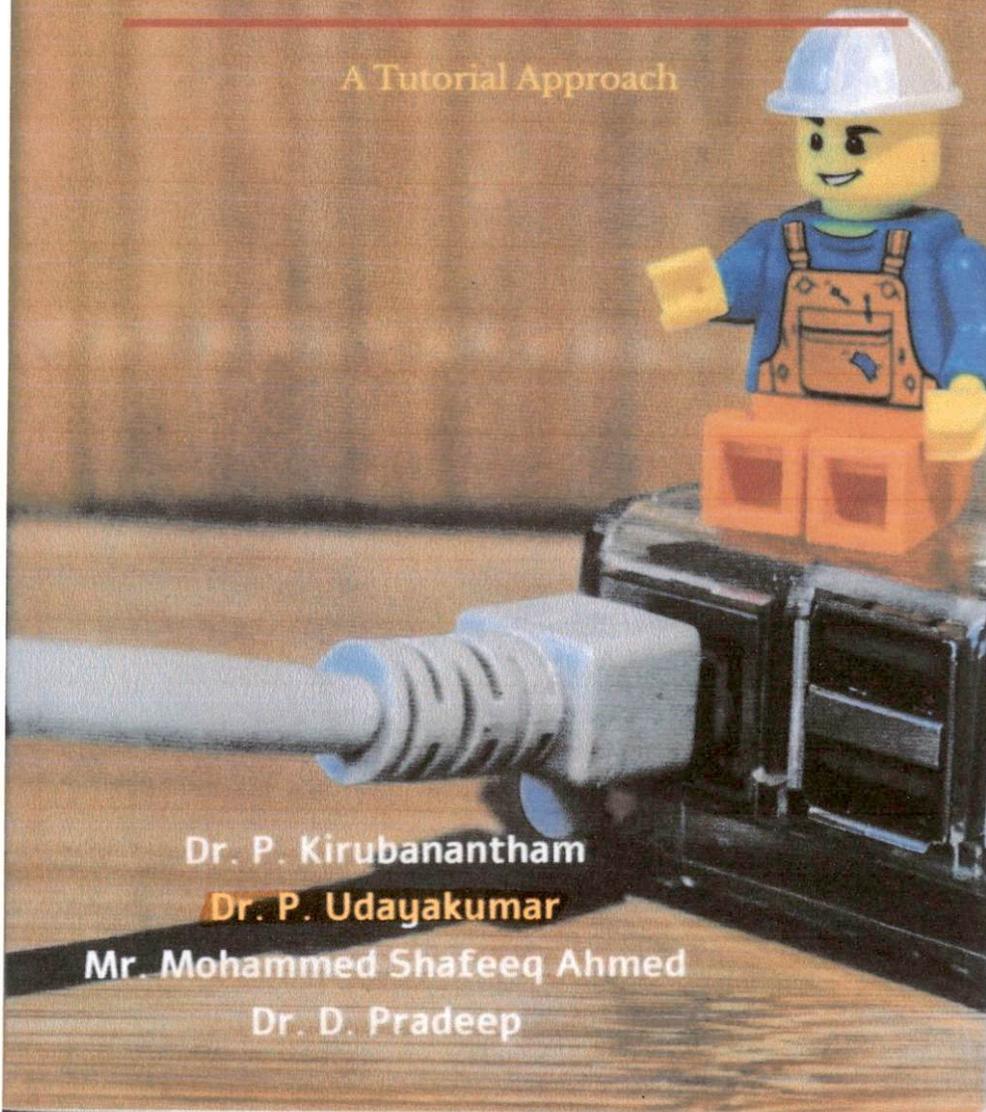
Dr. V. Srinivasa Rao obtained his Ph. D in November, 2016, from JNTUK, Kakinada, A.P. Presently he is working as Professor and Head of the department EEE in Aditya Engineering College(A), Surampalem, India. He has published various national and international journals. His areas of interest are Power Systems, Power Quality, FACTS and EVs.



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MicroPython for the Internet of Things

A Tutorial Approach



Dr. P. Kirubanantham

Dr. P. Udayakumar

Mr. Mohammed Shafeeq Ahmed

Dr. D. Pradeep

S. U. J.

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MicroPython for the Internet of Things

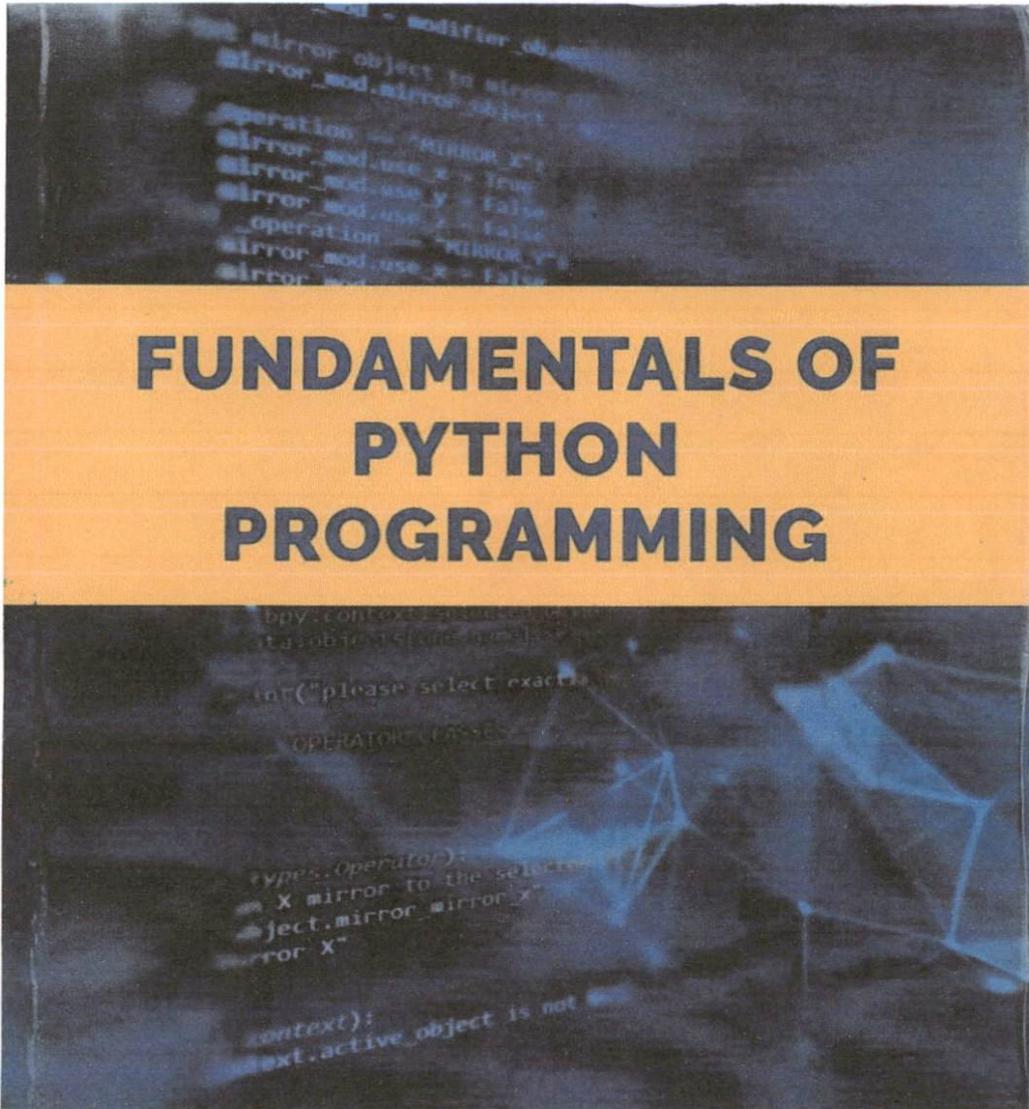
The book was written to guide the reader from a general knowledge of microcontrollers and MicroPython to expertise in developing MicroPython solutions for the IOT. The first several chapters cover general topics including a short introduction to the Internet of Things, what microcontroller boards are available as well as how MicroPython works. Later chapters present a tutorial on programming in MicroPython as well as an introduction to electronics. This is followed by four projects that you can implement to learn how to build MicroPython IOT solutions. Throughout the book are examples of how to implement many of the concepts presented.

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S. V. J.

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Dr. Korla Swaroopa
Mr.S.Venkatasubramanian
Dr. Mahendra Pratap Swain
Dr. Naveen N. Malvade



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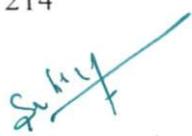
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AUTHORS PROFILE

Dr. Korla Swaroopa, Associate Professor in the Department of Computer Science & Engg., Aditya Engineering College, Surampalem, Andhra Pradesh. She obtained her Doctor Of Philosophy in Faculty Of Engg(CSE) from GITAM (Deemed to be University), Visakhapatnam in 2019. She did her postgraduate M.Tech (CSE) from RVR&JC College of Engineering-Acharya Nagarjuna University, Guntur in 2008, and she earned her undergraduate B.Tech(CSE) in Narasaraopeta Engineering College-JNTUH, Narasaraopet in 2005. She has more than 14 years of teaching, 8 years of research and one year of software industry experience. Her Research Interest includes Programming languages, Cloud Computing, Information Centric Networks, High Performance Computing. She has published more than seven reputed publications in International Journals including IJMNDI, Future internet, IJAST to her credit, three conference publications, two National seminar and two Book Chapters in Springer-Book and Taylor Francis book chapter series. She also published two Indian Patents. She has received young researcher award in 2021 by Institute of scholars for her Future internet journal which is in MDPI data base. She is professional associate member of ISTE, IAENG, AMIE & InSc.



Mr. S. Venkatasubramanian received the B.E. degree in Electronics and Communication from Bharathidasan University and M.E. degree in Computer science from Regional Engineering College, Trichy. He has 23 years of teaching experience. He is currently pursuing doctoral research in mobile Ad hoc networks. His areas of interest include mobile networks, Network Security and software Engineering. He has published 25 papers in the international journals, 10 papers in international conferences and filed 4 patents. At present he is working as Associate Professor in Department of CSE at Saranathan college of Engineering, Trichy, India. He has also authored books on "Software Engineering" and "Fundamentals of Mobile and pervasive Computing". He is also the recipient of Global teacher award by AKS New Delhi.



Dr. Mahendra Pratap Swain, has more than 6 years of industrial and academic research experience in formulation design and development. He is currently joined as National Doctoral Fellow (NDF-AICTE), at Birla Institute of Technology (BIT), Mesra, Ranchi. He did his research work in the field of formulation development and design, new drug delivery system (NDDS), abbreviated new drug application (ANDA), and In-silico approach (artificial intelligence) of the drug delivery system as well. He has various publications (Research and Review) and patents in the above disciplines.



Dr. Naveen N. Malvade, Malvade, Associate Professor in Department of Computer Science and Engineering, ATME College of Engineering, Mysuru. He earned his Ph.D. degree from Visvesvaraya Technological University, Belagavi, Karnataka in 2020. He has got 12 years of teaching experience. He also worked as Associate Software Engineer for 3 years from 2007 to 2009. He is a reviewer for some renowned international journals published by Elsevier. He has published more than 10 research papers in reputed international journals. His areas of interest include Computer Vision, Pattern Recognition, and Deep Learning.



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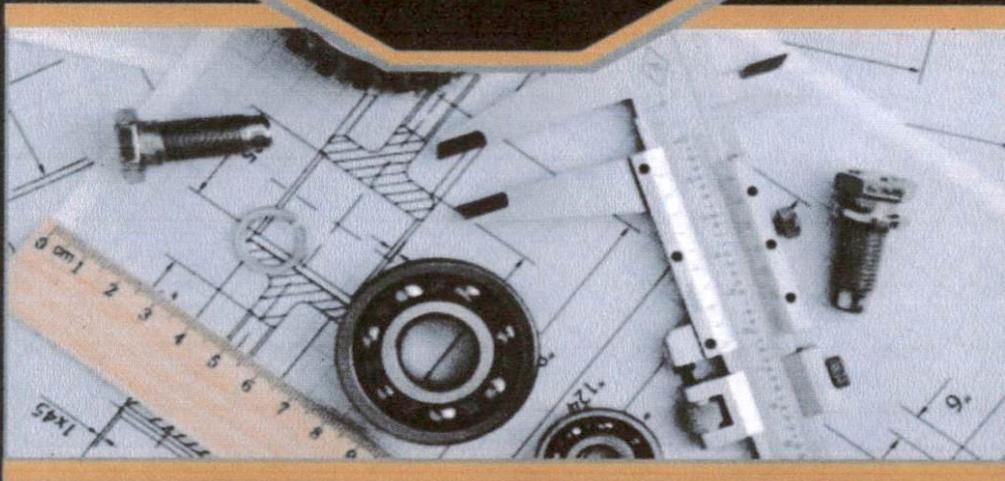
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About Authors



Dr. Mary Jasmin Nerella Currently working as Associate Professor at Tirumala Engineering College, Narasaraopet. She received her B.E, M.E, in Mechanical Engineering from SRKREC, Andhra University, M.Tech in Computer Science and Engineering from YEC, JNTUK. She received her PhD degree in Mechanical Engineering from Andhra University, Visakhapatnam in 2019. She has more than 20 years of Teaching experience and worked in Reputed Institutions like Malleni Laxmalah Engineering College, Singarayakonda as Assistant Professor from the year 2000-2009, KITS, Markapur as Associate Professor from the year 2010-2014, Teaching Assistant at Andhra University, Visakhapatnam from the year 2014-2019. She has guided various UG & PG Projects and her areas of interests are Manufacturing Engineering, Artificial Intelligence, Vibrations & Condition Monitoring. She holds her membership in ISTE & IEI. Email : jasminmary2@gmail.com



Dr. V.V. KAMESH currently Working as Professor in Mechanical Engineering in Aditya Engineering College(A), Surampalem and has 19 years of teaching experience from the same college since 2002. He completed his Bachelor of Engineering (B.E) - Graduated from S.R.K.R. Engineering College, Bhimavaram, Affiliated to Andhra University (1997) in First Class with Distinction, Master of Business Administration (M.B.A) - Graduated from Andhra University (Distance Mode) in First Class (2001), Master of Technology in CAD/CAM from Nimra College of Engineering & Technology, Affiliated to JNTUK, Kakinada in First Class with Distinction (2009) , Ph.D from JNTUK, Kakinada in December 2017 the area of Machine Design. He has guided various UG & PG Projects and his area of interest includes Kinematics of Machinery, Operations Research. Email : kameshvv@gmail.com



Dr. Ram Subbiah is currently working as Associate Professor, Department of Mechanical Engineering in Gokaraju Rangaraju Institute of Engineering & Technology, Hyderabad. He completed his Diploma in Mechanical Engineering (DME), Bachelor of Engineering (B.E) in Mechatronics Engineering, Master of Technology (M.Tech) in Computer Integrated Manufacturing as a Gold Medalist, Master of Business Administration (MBA) in Education Management. He carried out his research work at Indian Space Research Organization (ISRO) and completed his Ph.D from Singhania University, Pilani. Altogether by completing all the degrees by 29 years of age, he has 12 years of Academic/ Research experience and has published 25 Project Patents, More than 300 Research papers which includes National/ International - Journals & Conferences. He received many awards for showing outstanding achievements in the field of Education and Research activities. His areas of specializations are Material Science - Surface Hardening Processes, Mechatronics and Automation. Email: ram4msrm@gmail.com



Dr. Pramod.V.R is currently working as Professor in Mechanical Engineering Department of NSS College of Engineering, Palakkad, India. He holds B.Tech in Mechanical Engineering, from University of Kerala, M.Tech in Maintenance Engineering and Management from IIT Madras and PhD in Supply Chain Management from IIT Delhi. He has seven years of industrial experience and twenty one years of teaching experience. He has published over 20 papers in the proceedings of the leading National and International Conferences. He has published 30 papers in International Journals. 6 research scholars have obtained Ph.D. degrees under his direct guidance. Four research scholars are currently pursuing Ph.D. under his guidance. He has delivered several technical lectures in various kinds of podiums. His current areas of research interest include engineering education, supply chain management, telecom logistics and service management. Email : pramodvram@gmail.com



Prof. Amol Mangrulkar is currently working as Assistant Professor in Mechanical Engineering department at MCT's Rajiv Gandhi Institute of Technology, Andheri (w), Mumbai. He is pursuing his Ph.D at present, completed his M.Tech from (CAD/CAM), PGDCIS, B.E.(Mechanical Engineering). He has 27 Years of experience out of which 15 years from industry and 12 years in teaching. He worked with companies like Mahindra, Rolta, Zensar, JBF, ADCC etc. He has Published 10 technical papers 6 in journal and 4 in International conferences. He completed Oracle Certified Professional course(OCA) and his area of interest includes CAD/CAM/CAE/CIM/CFD, PLM, DFAM, DFM, DFA, VR/AR, AI & Industrial Automation, Bio-medical engg application. He got trained in Ansys Work bench, Pro-E, IDEAS, AutoDesk, Inventor, Microstation, MetLab, ARGIS, Erdas, AutoCAD, AutoCAD MAP, Oracle, VB, J2EE etc. he holds membership in various professional Bodies Association of ASME, SAE, NSFMPF, IAENG, APM. Email : a.mangrulkar@gmail.com

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Suryanarayana Veeravilli · Sambasiva Rao Krothapalli ·
Jahnvi Tatineni

Personalized Cancer Medicine

Strategies for predictive, preventive and
personalized medicine in cancer

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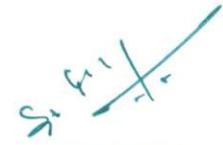
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Personalized Cancer Medicine

Cancer is a complex disease occurring as a result of a progressive accumulation of genetic aberrations and epigenetic changes that enable escape from normal cellular and environmental controls.

Over the past 20 years, technological advances in molecular biology have proven invaluable to the understanding of the pathogenesis of human cancer. The application of molecular technology to the study of cancer has not only led to advances in tumour diagnosis, but has also provided markers for the assessment of prognosis and disease progression. The mechanisms for controlling when and how a eukaryotic cell divides are fundamental to the biology of multicellular organisms. Abnormal regulation can provide a driver for disease processes, not the least, cancer.

The aim of this book is to provide an overview of the strategies in cancer prevention in as molecular and functional entities, together with both their involvement in different disease processes and their potential for pharmacological modulation.

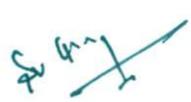


Dr. Suryanarayana Veeravilli has background in the field of Environmental Sciences & Applied Microbiology and has 23 years of postdoctoral teaching & research experience. He as the main author conceived of the presented idea of work and involved in critical revision of the article and final approval & published over 72 papers in reputed journals.



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Innate responses of chicken antibodies towards malarial antigens

Immunology grabbed a heavenly ground towards the aggregate of the nineteenth century, through smart developments in the examination of humoral cell security and prosperity. Insect borne maladies oversee mortality and serious dismalness around the world. Creepy Crawly the passenger as control of the populace depends principally on the utilization of bug spray, the rise of bug spray protection too to unintended outcomes of bug spray noteworthy difficulties to utilize perspective proceeded with their application.

This book discuss about the experimental method and results on inherent immunological activities of immunoglobulins towards low level infestation of malarial antigens. Monoclonal antibodies have been connected to the finding clinically and treatment of a variety of human issue, including malignancy and irresistible maladies, and have been utilized for the balance of insusceptible reactions. There is a pressing need for safe and effective monoclonal antibodies that have minimal side effects. However natural monoclonal antibodies production is highly recommended to overcome the significant side effects produced by the immune system.



Dr. Suryanarayana is Professor and Principal Investigator at Aditya Engineering College, India having 23 years of postdoctoral teaching and research experience. He is the key note speaker and Chair Person for Eurobiotechnology 23rd Congress, Switzerland. He has published over 72 papers in reputed journals and member of repute scientific societies.



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INTERNET OF THINGS IN AUTOMOTIVE INDUSTRIES AND ROAD SAFETY: Electronic Circuits, Program Coding and Cloud Servers

Rajesh Singh, Anita Gehlot,
Raghuveer Chimata, Bhupendra Singh,
and P.S. Ranjith




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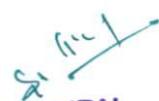
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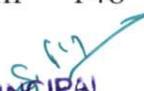
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INTERNET OF THINGS IN AUTOMOTIVE INDUSTRIES AND ROAD SAFETY: Electronic Circuits, Program Coding and Cloud Servers

Rajesh Singh, Anita Gehlot,
Raghuveer Chimata, Bhupendra Singh
and **P. S. Ranji**

The aim of this book is to provide a platform to readers through which they can access the applications of 'Internet of Things' in the Automotive field. *Internet of Things in Automotive Industries and Road Safety* provides the basic knowledge of the modules with interfacing, along with the programming. Several examples for rapid prototyping are included, this to make the readers understand about the concept of IoT.

The book comprises of ten chapters for designing different independent prototypes for the automotive applications, and it would be beneficial for the people who want to get started with hardware based project prototypes. The text is based on the practical experience of the authors built up whilst undergoing projects with students and industry.

Technical topics discussed in the book include:

- Role of IoT in automotive industries
- Arduino and its interfacing with I/O devices
- TI Launch Pad and its interfacing with I/O devices
- NodeMCU and its interfacing with I/O devices
- Serial Communication with Arduino and NodeMCU



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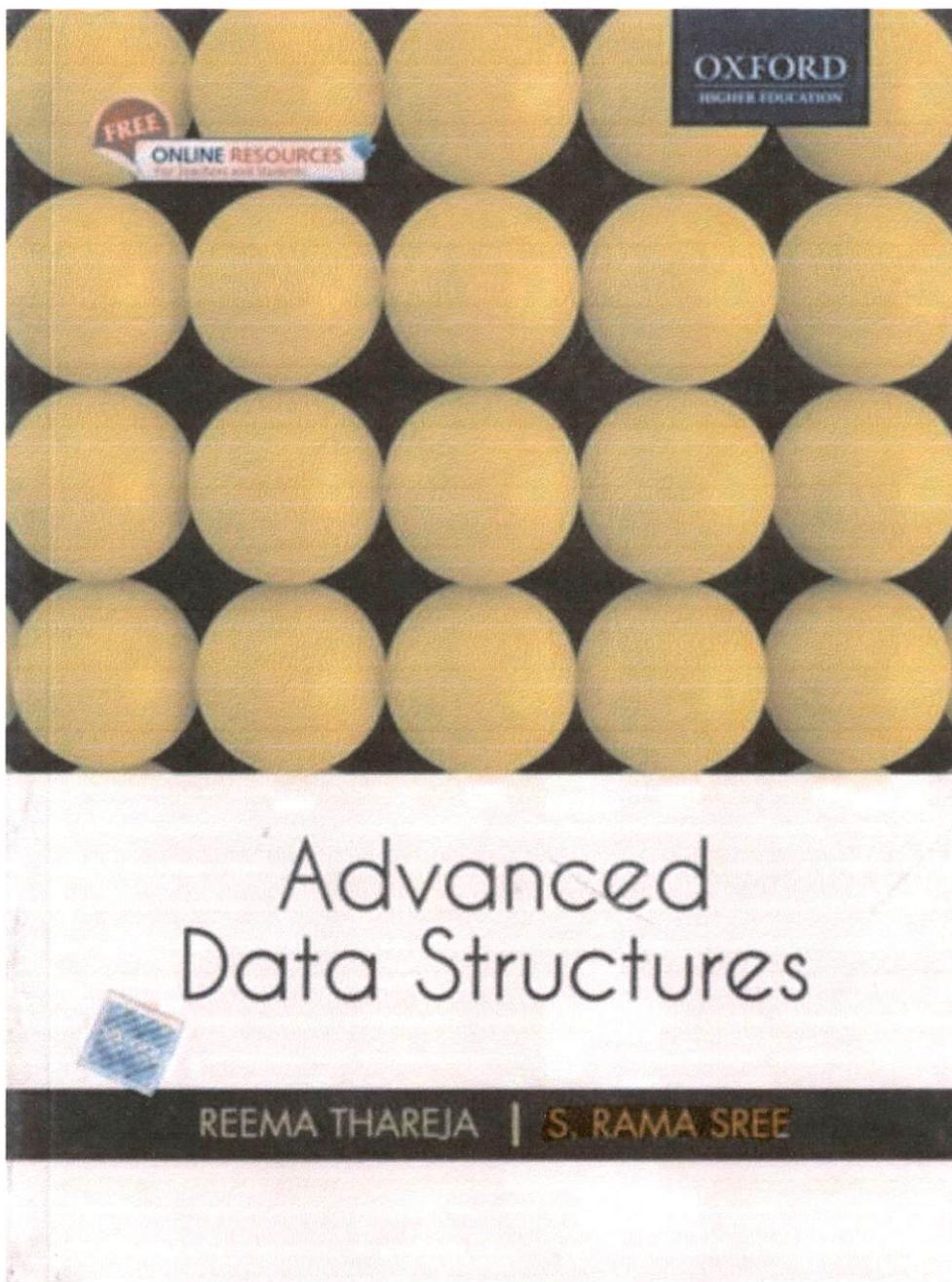
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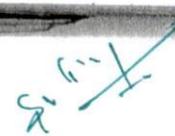
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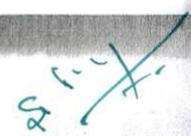

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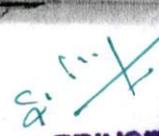
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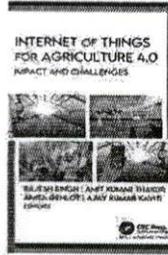
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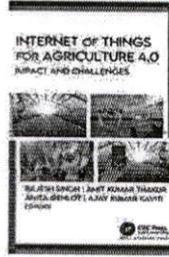
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By P.S. Ranjit, B. Vidheya Raju, G.S. Mahesh, M. Sreenivasa Reddy

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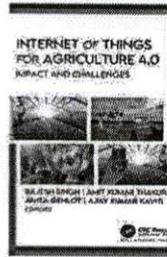


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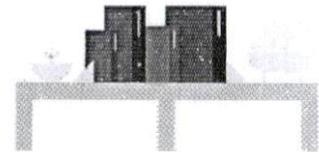
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A GENERAL PERSPECTIVE OF EFFECTIVE TEACHING FOR INNOVATIVE THINKING

Dr. M. Sandra Carmel Sophia

Professor of English,

Aditya Engineering College (A), Surampalem, EG Dist.AP

Mr. Ollala Srinivas

PGT English, Telangana Minorities Residential JR College, Karimnagar, Telangana.

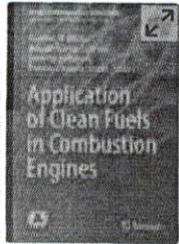
Abstract

Globalization has become a reality to fulfill the aspirations of learners and a large number of students now prefer higher studies and careers abroad. The outcome of globalization is education. Globalization has paved the way for drastic changes in education. Education is one of the key factors reining the world today. A few centuries back,

Dr. M. Sandra Carmel Sophia

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Application of Clean Fuels in Combustion Engines pp 195–213

Hydrogen in Spark Ignition Engines

P. V. Elumalai , N. S. Senthur, M. Parthasarathy, S. K. Das,
Olusegun D. Samuel, M. Sreenivasa Reddy, A. Saravana, S.
Anjanidevi, Adduri SSM Sitaramamurty, M. Anusha &
Selçuk Sarıkoç

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Part of the Energy, Environment, and Sustainability book series (ENENSU)

Abstract

In the present world, there is a huge demand for spark ignition (SI) engines in transportation sector as there is an increase in population of light commercial vehicles such as motorcycles and cars. Petrol powered SI engine produces less noise and vibration with high thermal efficiency as compared with diesel engines. Utilization of hydrogen as fuel in SI engines has found to improve the combustion and performance characteristics of engines. The primary fuel petrol and secondary fuel hydrogen are induced in the inlet manifold. The various percentage of hydrogen used in the SI engines


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Verhelst S, Verstraeten ST, Sierens R (2006) Combustion strategies and NOx emissions for hydrogen fueled IC engines. FISITA World Automotive Congress, YOKOHAMA (paper F2006092)

White CM, Steeper RR, Lutz AE (2006) The hydrogen fuelled internal combustion engine: a technical review. Int J Hydrog Energy 31(10):1292–1305. (Science direct, Elsevier)

Yu X, Du Y, Sun P, Liu L, Wu H, Zuo X (2017) Effects of hydrogen direct injection strategy on characteristics of lean-burn hydrogen–petrol engines. Fuel 208:602–611.
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Author information

Authors and Affiliations

Department of Mechanical Engineering, Aditya Engineering College, Surampalem, India

P. V. Elumalai, S. K. Das, M. Sreenivasa Reddy, A.

Saravana, S. Anjanidevi, Adduri SSM

Sitaramamurthy & M. Anusha

Department of Mechanical Engineering, Bharath Institute of Higher Education and Research, Chennai, India


PRINCIPAL
Aditya Engineering College
SURAMPALEM

N. S. Senthur

**Department of Mechanical Engineering, Vel Tech
Rangarajan Dr. Sagunthala R&D Institute of
Science and Technology, Chennai, India**

M. Parthasarathy

**Department of Mechanical Engineering, Federal
University of Petroleum Resources, P.M.B 1221,
Effurun, Delta State, Nigeria**

Olusegun D. Samuel

**Department of Mechanical Engineering, Science
Campus, University of South Africa, Private Bag
X6, Florida, 1709, South Africa**

Olusegun D. Samuel

**Department of Motor Vehicles and
Transportation Technologies, Amasya University,
Tasova Yuksel Akin Vocational School, Amasya,
Turkey**

Selçuk Sarıkoç

Corresponding author

Correspondence to P. V. Elumalai.

Editor information

Editors and Affiliations

**Istituto di Scienze e Tecnologie per l'Energia e la
Mobilità Sostenibili (STEMS), Department of
Mechanical Engineering, National Research
Council, Naples, Italy**

Dr. Gabriele Di Blasio

**Department of Mechanical Engineering, Indian
Institute of Technology Kanpur, Kanpur, India**

Dr. Avinash Kumar Agarwal

di *PN*
PRINCIPAL
Aditya Engineering College
SURAMPALEM

**Advanced Engineering, PUNCH Torino, Turin,
Italy**

Dr. Giacomo Belgiorno

**Department of Mechanical Engineering, Indian
Institute of Technology Bhilai, Raipur, India**

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Advances in Sustainable Materials and Resilient Infrastructure pp 185–200

Review on Biopolymer Stabilization— A Natural Alternative for Erosion Control

S. Anandha Kumar, G. Kannan, M. Vishweswaran &
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Soil erosion by agents like wind and water is a serious environmental concern that has a damaging effect on agricultural activity, surface water quality, construction activities and human health. The soil parameters that influence erosion susceptibility are particle size, moisture content, density, clay content and permeability. Some common techniques to combat erosion are vegetating the slopes, mulch application, surface roughening, provision of physical barriers and stabilizing the soil. The most common stabilizer used to prevent erosion is polymers, particularly synthetic polymers but the


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**Department of Civil Engineering, Aditya
Engineering College (Autonomous),
Surampalem, 533437, Andhra Pradesh, India**
S. Anandha Kumar

**School of Civil Engineering, SASTRA Deemed
University, Thanjavur, 613401, Tamil Nadu, India**
G. Kannan & M. Vishweswaran

**Centre for Advanced Research On Environment,
School of Civil Engineering, SASTRA Deemed
University, Thanjavur, 613401, Tamil Nadu, India**
Evangelin Ramani Sujatha

Editor information

Editors and Affiliations

**Department of Civil, Materials, and
Environmental Engineering, University of
Illinois, Chicago, IL, USA**

Krishna R. Reddy

**Department of Civil Engineering, National
Institute of Technology Warangal, Warangal,
India**

Prof. Dr. Rathish Kumar Pancharathi

**Department of Civil Engineering, Kakatiya
Institute of Technology and Science, Warangal,
India**

Narala Gangadhara Reddy

**Department of Civil Engineering, Kakatiya
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Greener and Scalable E-fuels for Decarbonization of Transport pp 173–191

Effectiveness of Hydrogen and Nanoparticles Addition in Eucalyptus Biofuel for Improving the Performance and Reduction of Emission in CI Engine

[P. V. Elumalai](#) , [N. S. Senthur](#), [M. Parthasarathy](#), [S. K. Dash](#), [Olusegun D. Samuel](#), [M. Sreenivasa Reddy](#), [M. Murugan](#), [PritamKumar Das](#), [A. S. S. M. Sitaramamurty](#), [S. Anjanidevi](#) & [Selçuk Sarıkoç](#)

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Part of the [Energy, Environment, and Sustainability](#) book series (ENENSU)

Abstract

Eucalyptus biodiesel (EB) powered CI engine was characterized by low brake thermal efficiency (BTE) and more smoke emission. The inherent oxygen content of nanoparticles could be added with EB leading to improve the oxidation of hydrocarbon that results in low smoke emission. The present study was initially carried out on a compression ignition engine powered by EB considered as

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Author information

Authors and Affiliations

Department of Mechanical Engineering, Aditya Engineering College, Surampalem, India

P. V. Elumalai, S. K. Dash, M. Sreenivasa

Reddy, PritamKumar Das, A. S. S. M.

Sitaramamurthy & S. Anjanidevi

Department of Mechanical Engineering, Bharath Institute of Higher Education and Research, Chennai, India

N. S. Senthur

Department of Automobile Engineering, Vel Tech Rangarajan Dr, Sagunthala R&D Institute of Science and Technology, Chennai, India

M. Parthasarathy

Department of Mechanical Engineering, Federal University of Petroleum, Resources, P.M.B 1221, Effurun, Delta State, Nigeria

Olusegun D. Samuel

Department of Mechanical Engineering, University of South Africa, Science, Campus, Private Bag X6, Florida, 1709, South Africa

Olusegun D. Samuel

Department of Motor Vehicles and Transportation Technologies, Tasova Yuksel Akin


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**Vocational School, Amasya University, Amasya,
Turkey**

Selçuk Sarıkoç

**Department of Mechanical Engineering, Aditya
College of Engineering and Technology,
Surampalem, India**

M. Murugan

Corresponding author

Correspondence to [P. V. Elumalai](#).

Editor information

Editors and Affiliations

**Department of Mechanical Engineering, Indian
Institute of Technology Kanpur, Kanpur, Uttar
Pradesh, India**

Prof. Avinash Kumar Agarwal

**Department of Mechanical Engineering, Indian
Institute of Technology Kanpur, Kanpur, Uttar
Pradesh, India**

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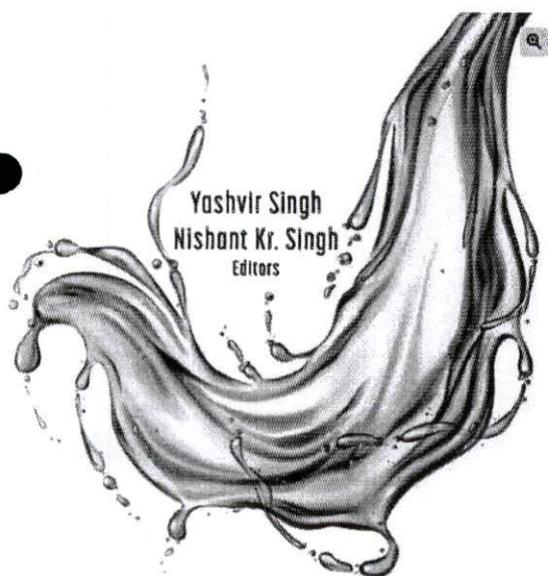
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Properties and Uses of Vegetable Oils

FOOD SCIENCE AND TECHNOLOGY



Properties and Uses of Vegetable Oils

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Nishant Kumar Singh, MD (Editor), Yashvir Singh, MD (Editor)

Series: Food Science and Technology

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Vegetable oils are a group of fats derived from seeds, nuts, cereal grains, and fruits. It is important to understand that not all vegetable oils are liquid oils at ambient temperatures. Vegetable oils have enormous potential as alternatives for mineral oil in a myriad of industrial applications. Although our knowledge of the genes and biochemical pathways leading to the formation of plant oils allows for the potential to engineer a diverse array of lipid products in seed oils, this goal remains a challenge. This book identifies the prospects of vegetable oils for different applications that facilitate readers from academia, industry, and research laboratories to enhance their knowledge of utilizing vegetable oils in different industrial sectors.

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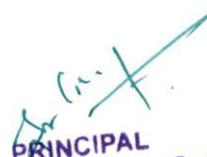

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Chapter

JATROPHA CURCAS

*P. S. Ranjit¹, Venkateswarlu Chintala²,
A. Veeresh Babu³ and Yashvir Singh⁴*

¹Department of Mechanical Engineering, Aditya Engineering
College (A), Surampalem, Andhra Pradesh, India

²School of Engineering and Applied Sciences,
National Rail and Transportation Institute, Vadodara, Gujarat, India

³Mechanical Engineering Department, NIT Warangal, Telangana,
India

⁴Deptment of Mechanical Engineering, Graphic Era, Dehradun,
Uttarakhand, India

ABSTRACT

Jatropha Curcas is generally called as Jatropha. Oil extracted from Jatropha can be considered as a non-edible oil and can be yielded in a barren land with low water availability. Even the Indian Government also promoted this Jatropha derived oil as one of the promising alternatives for fossil fuels. Being Jatropha is a sustainable yield, environmentally friendly, good in yield different aspects in making use of alternative fuel as processing its seeds, composition, quality and advanced techniques has been discussed in the chapter.

Keywords: Jatropha Curcas, biofuels, Green House Gases, Renewable energy,

* Corresponding Author's Email: psranjit1234@gmail.com.


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**EXPERIMENTAL INVESTIGATIONS ON
INFLUENCE OF PREHEATING THE JATROPHA
BASED STRAIGHT VEGETABLE OIL THROUGH
EXHAUST GAS FRAMEWORK
ON AN IDI CI ENGINE**

***P. S. Ranjit¹, Venkateswarlu Chintala²,
Veeresh Babu A³ and Yashvir Singh⁴***

¹Professor, Dept. of Mechanical Engineering,
Aditya Engineering College (A), Surampalem

²Associate Professor, School of Engineering and Applied Sciences,
National Rail and Transportation Institute (Deemed to be University)
Vadodara, Gujarat, India

³Associate Professor, Mechanical Engineering Department,
NIT Warangal, Telangana

⁴Associate Professor, Dept. of Mechanical Engineering,
Graphic Era Deemed to be University, Dehradun, Uttarakhand, India

ABSTRACT

Depletion of fossil fuels, an exponential increase in the price of barrel crude oil, engine-out emissions reached to an alarming level, to promote local employment at the rural level, and to fulfil the words (Self -reliance) of the honourable prime minister of India. For sustainable development, an experimental investigation was done on Jatropha Curcas based preheated Straight vegetable Oil. In-direct Injection CI engine was selected, being most commonly used by the farmers in agricultural land. Performance parameters like Brake Thermal Efficiency (BTE), Brake Specific Energy Consumption (BSEC), Combustion Characteristics like P- Theta, Differential Heat Release Rate (DHRR), Integral Heat Release Rate (IHRR) and Emissions like NO_x, CO, CO₂, HC and Smoke were evaluated and presented in this chapter for suitability to make use in internal combustion engines.

Keywords: Jatropha Curcas, performance, emissions, preheating framework and IDI engine

Chapter

BIOFUEL AND FUEL CHARACTERIZATION FOR IC ENGINES

*P. S. Ranjit¹, Venkateswarlu Chintala²,
A. Veeresh Babu³ and Yashvir Singh⁴*

¹Department of Mechanical Engineering, Aditya Engineering
College (A), Surampalem, Andhra Pradesh, India

²School of Engineering and Applied Sciences,
National Rail and Transportation Institute, Vadodara, Gujarat, India

³Mechanical Engineering Department, NIT Warangal, Telangana, India

⁴Deptment of Mechanical Engineering, Graphic Era, Dehradun,
Uttarakhand, India

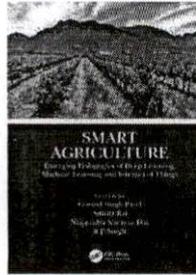
ABSTRACT

Various low emission situations have exhibited that the objectives of the Kyoto Protocol cannot be accomplished without giving an enormous job to biofuels by 2050 in the worldwide energy economy (Vertès, Inui et al. 2006). Among the reasons why biofuels are suitable for such progress, one may recognize: (i) their straightforwardness; (ii) their creation through notable agrarian innovations; (iii) their potential for alleviation of atmosphere warming without complete rebuilding of the current working energy framework; (iv) the utilization of existing engines for their transportation (in any event, considering the customary turbofan utilized in avionics) (Kleiner 2007, Rothengatter 2010); (v) their capability to encourage the overall activation around a typical arrangement of guidelines; (vi) their potential as a legitimately accessible energy source with great open acknowledgement; (vii) their more uniform dispersion than the appropriations of petroleum derivative and atomic assets; and (viii) their capability to make benefits in country zones, including business creation.

Keywords: biofuel, fuel characterization, Generations of Biofuel

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Book



Smart Agriculture

Emerging Pedagogies of Deep Learning, Machine Learning and Internet of Things

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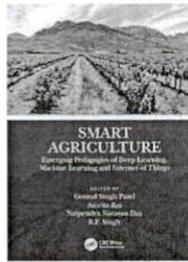
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Role of IoT in sustainable farming

By *Rajasekhar Manda, P.Rajesh Kumar*

Book [Smart Agriculture \(<https://www.taylorfrancis.com/books/mono/10.1201/b22627/smart-agriculture?refId=1d5bc506-6ec2-45a8-838d-356d4a53aa2a&context=ubx>\)](https://www.taylorfrancis.com/books/mono/10.1201/b22627/smart-agriculture?refId=1d5bc506-6ec2-45a8-838d-356d4a53aa2a&context=ubx)

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ABSTRACT ▼

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Novel Internal Combustion Engine Technologies for Performance Improvement and Emission Reduction pp 235–263

Effect of Hybrid Nanoparticle on DI Diesel Engine Performance, Combustion, and Emission Studies

[Elumalai Perumal Venkatesan](#) , [Dhinesh](#)

[Balasubramanian](#), [Olusegun David Samuel](#), [Muhammad Usman Kaisan](#) & [Parthasarathy Murugesan](#)

Chapter | First Online: 15 June 2021

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Abstract

The frequent rise in the use of diesel engines in all fields emits harmful gases such as NO_x and CO , which causes significant environmental emissions, global warming, breathing problems, etc. (Sivalingam et al. 2019). In the investigation of the performance, combustion, and emission characteristics, using diesel water emulsion is mixed with hybrid nanoparticles as additives in Direct Injection (DI) diesel engine. Reducing the emission characteristics and increasing engine performance is to introduce emulsion fuels (Parthasarathy et al.



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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Author information

Authors and Affiliations

**Aditya Engineering College, Surampalem,
533437, India**

Elumalai Perumal Venkatesan

**Department of Mechanical Engineering, Mepco
Schlenk Engineering College, Sivakasi, India**

Dhinesh Balasubramanian

**Mechanical Engineering, Faculty of Engineering,
Khon Kaen University, Khon Kaen, Thailand**

Dhinesh Balasubramanian

**Center for Alternative Energy Research and
Development, Khon Kaen University, Khon Kaen,
Thailand**

Dhinesh Balasubramanian

**Department of Mechanical Engineering, Federal
University of Petroleum Resources, P.M.B 1221,
Effurun, Delta State, Nigeria**

Olusegun David Samuel


PRINCIPAL
Aditya Engineering College
SURAMPALEM

**Department of Mechanical Engineering,
University of South Africa, Science Campus,
Private Bag X6, Florida, 1719, South Africa**

Olusegun David Samuel

**Department of Mechanical Engineering,
Ahmadu Bello University, Room 11, Shell Chair
Office Complex, Zaria, Nigeria**

Muhammad Usman Kaisan

**Department of Automobile Engineering, Vel
Tech Rangarajan Dr. Sagunthala R&D Institute of
Science and Technology, Avadi, India**

● Parthasarathy Murugesan

Corresponding author

Correspondence to Elumalai Perumal Venkatesan.

Editor information

Editors and Affiliations

**Department of Mechanical Engineering, Indian
Institute of Technology Kanpur, Kanpur, Uttar
Pradesh, India**

● Prof. Akhilendra Pratap Singh

**Department of Mechanical Engineering, Indian
Institute of Technology Kanpur, Kanpur, Uttar
Pradesh, India**

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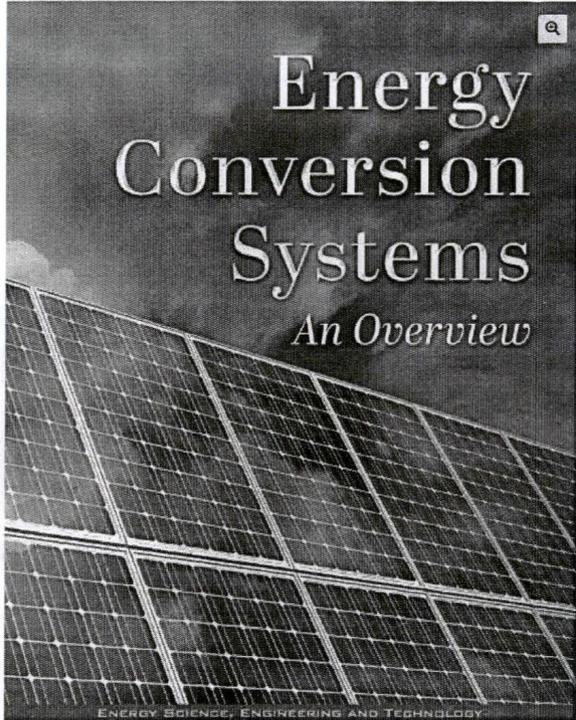
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Saurabh Mani Tripathi, PhD
Sanjeevikumar Padmanaban, PhD
Editors

NOVA

Energy Conversion Systems: An Overview

\$230.00

Sanjeevikumar Padmanaban, PhD (Editor), Saurabh Mani Tripathi, PhD (Editor)

Series: Energy Science, Engineering and Technology

BISAC: SC1024000

This edited book is intended to serve as a resource for engineers, scientists and specialists engaged in becoming familiarized with green energy conversion for a clean atmosphere with an adaption of 'more-renewable' for power generation. The book is comprised of nine original chapters dealing with state-of-the-design exercises on power conversion/storage technologies. It highlights the critical features of energy technology for green engineering for the future. This edited volume is an extensive collection of state-of-the-art studies on the subject.

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Chapter 3

DEVELOPMENT AND PERFORMANCE ANALYSIS OF SOLAR TRACKING PV SYSTEMS

Shashwati Ray^{1,}, Abhishek Kumar Tripathi²
and Gourav Shankar¹*

¹Bhilai Institute of Technology, Durg, Chhattisgarh, India

²Aditya Engineering College (A), Surampalem, A.P., India

ABSTRACT



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Extensive researches are conducted all around the world on renewable energy generation due to decreasing fossil fuel sources and increasing pollution. Among variable renewable energy solutions, solar energy is a vital source for generating electrical power. The most attractive and viable application of solar energy is the conversion of solar energy into electrical energy employing solar photovoltaic (PV) panel. The output power of solar PV panel depends on the quantum of solar radiation incident on the panel surface. Due to earth's rotation and revolution, the solar radiation incident on the PV panel surface throughout the day is not uniform which lowers its



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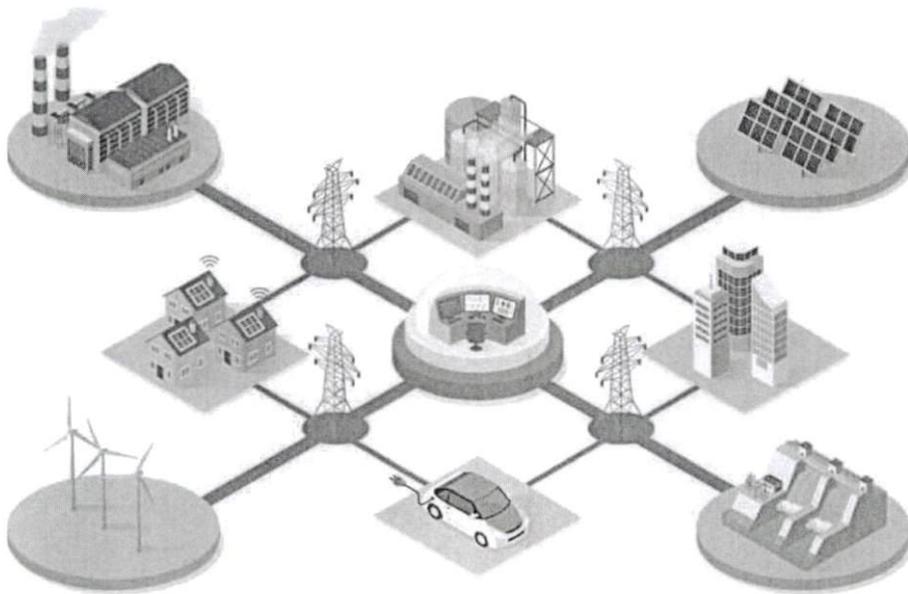
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APPLIED SOFT COMPUTING TECHNIQUES FOR RENEWABLE ENERGY



Amit Kumar Thakur • Rajesh Singh
Ajay Kumar Kaviti • Anita Gehlot
J.V Muruga Lal Jeyan
Editors

S. V. Murugan

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performed on various engines are considered to be time consuming and the expenses met to perform these experiments are too costly, so the need of soft computing techniques involved in this area.

Soft computing can be better described as the process to find the solution to an inexact problem. Soft computing has showed lot of potential in giving the researchers the exact solution may be in case of validating or predicting the performance and emission parameters. Artificial Neural Network (ANN), Adaptive Neuro Fuzzy Inference system (ANFIS), Fuzzy Expert System (FES), Response Surface Methodology (RSM) and Support Vector Machine (SVM) are the various soft computing techniques widely used.

This book focuses on to carry out the comprehensive review and various other experimental works of various researchers who have carried out the work on these various soft computing techniques on various engines with various alternative fuels On the basis of modelling techniques, time is saved to a great extent and the capital investment involved is comparably very low. Various modelling techniques are being readily used to predict the performance parameters for various engines and modelling techniques have become the readily available tool to compare and validate the experimental work being carried out by researchers to get accurate matching with the experimental data. The benefit of this issue will be at large in connecting with varieties of work done in the field of Biomass which includes wood and wood waste, municipal solid waste. Landfill gas and biogas, Ethanol, Biodiesel, Hydropower, Geothermal, Wind, Solar. Thus soft computing techniques are fast and reliable hence, they can be a substitute for conventional experiments.

(Imprint: Nova)

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(P. S. Ranjit, Professor, Department of Mechanical Engineering, Aditya Engineering College [Autonomous], Surampalem, Andhra Pradesh, India)

Chapter 3. Hydrogen: Present and Future Energy

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Chapter

BIOMASS

P. S. Ranjit* & Amit Kumar Thakur#

*Professor, Department of Mechanical Engineering, Aditya Engineering College (Autonomous), Surampalem, Andhra Pradesh, India

Associate Professor, Department of Aerospace, School of Mechanical Engineering, Lovely Professional University, Phagwara, Punjab, India.

ABSTRACT

In countries including Sudan, Rwanda and Tanzania, Biomass contributes some 33% to the structural-enhancing scrutiny, from roughly 90% to 45% in Pakistan, to 30% in China and Brazil, and to 10-15% in Mexico, which is continually South Africa. These rates also alter irregularly as nations utilize auxiliary companies/oil suppliers daily. The main considerations are that in the next century there will be a reduction in the size of two or more billion citizens currently subject to biomass and what is the method for making the change in the circumstances of this reliance on biomass (neighbourhood and across the world)? "Consistent" [1]. In 1996 the World Bank conceived that ' vitality agreements would include the production and usage of biofuels as well as their existing forces.' Different countries draw much from their essential energy from biomass. In essence, 4% of the United States, 14% of Hungary, 18% of Sweden and 20% of Finland. 2 EJ/year, in any event, potentially supplies biomass essentiality, in West Europe and is roughly 4 per cent of the necessary imperatively (54 EJ). The estimate indicates natural capacities between 9.0-13.5 EJ in Europe focused on locations, rates and regenerative shops in 2050.


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* Corresponding Author's Email: psranjit1234@gmail.com.

Chapter

HYDROGEN – PRESENT & FUTURE ENERGY

Dr. P.S. Ranjit*

Professor, Department of Mechanical Engineering,
Aditya Engineering College (Autonomous), Surampalem,
Andhra Pradesh, India

ABSTRACT

Hydrogen may be classified as a renewable energy carrier next to electricity. Hydrogen development includes a range of domestic choices, including green energies and nuclear plants. Over the long term, hydrogen also reduces the dependency on imported energy and greenhouse gas emissions and other pollutants. Hydrogen may be considered the fundamental element in existence. Hydrogen is one of the essential elements of the earth's crust. Hydrogen, as a substance, is not necessarily contained and must be generated on earth. The explanation is that hydrogen gas is lighter and thus sinks into the atmosphere. Relevant components in the form of a composite, including biomass, gas and oil, also contribute to natural hydrogen.

The maximum energy density of hydrogen has that weight gasoline. The lowest carbon content is methane, on the other hand. It's a gas which is the lightest component of it at the average temperature and pressure. Hydrogen is the secondary energy supply, commonly called a fuel tank. Energy carriers are used to move, store and deliver electricity most easily. Electricity is the most common form of power supply.

Hydrogen would have a range of benefits as a theoretically sturdy electricity carrier. For some instances, a considerable amount of hydrogen is healthy to carry, such as deep fuel storage, liquid hydrogen for tanks, and the release of hydrogen by chemical compounds through heating. Additionally, hydrogen is used as an active, low pollutant fuel that is ideal for transportation, heating and power production in places where electricity is hard to find. The distribution of hydrogen through pipes is, in some instances, simpler than for long-range cables.

* Corresponding Author address
Email: psranjit1234@gmail.com


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Chapter

SAFETY ASPECTS IN HANDLING AND STORAGE OF ULTRA HIGH PURITY GASEOUS HYDROGEN

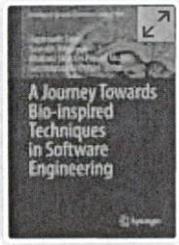
P. S. Ranjit

Professor, Department of Mechanical Engineering,
Aditya Engineering College (Autonomous),
Surampalem, Andhra Pradesh, India

ABSTRACT

Hydrogen is typically preserved in two ways and provided as compressed hydrogen or cryogenics. The most growing way of storing hydrogen is steel or composite cylinders/tanks in different sizes and capacities. Often they may be packed in a box or deposited for transport in a basket known as a cascade. Owing to its tiny molecules, hydrogen is prone to spill easily into some brittle structures, fractures and/or poor joints in storage tanks rather than certain traditional gasses under similar strain. Though hydrogen is typically non-corrosive and does not interfere with the storage materials in vessels, it may absorb material fragmentation at the grind structure. Additionally, a loss of hydrogen protection can happen in the event of fires and the construction content used in storage tanks will be damaged. In the worst case scenario, a hydrogen storage tank that generates a blow wave and flight projectiles/missiles could result in a catastrophic failure. Therefore, good quality requirements must be established and adhered to in the hydrogen storage facilities to ensure container integrity. This chapter provides an analysis of the main safety and technological issues relevant to the decisions created for hydrogen storage. This should be pointed out that, as this technology is more widely used and frequently utilized—unenergized discharges, fires, and their containment capacity and handling for domestic combustion engines—this chapter primarily concentrates on hydrogen storage systems.


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A Journey Towards Bio-inspired Techniques in Software Engineering pp 141–165

A Study on Application of Soft Computing Techniques for Software Effort Estimation

Sripada Rama Sree  & Chatla Prasada Rao

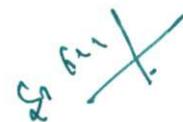
Chapter | First Online: 12 March 2020

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Abstract

Software is everywhere. Now-a-day' s software plays an indispensable role in all the fields like Education, Medical, Insurance, Marketing, Stock Exchange etc. The major goal of software organization is to achieve the Win-Win condition. As per the Standish Group Chaos Survey, only 30–40% of the software projects are successful. One of the main reasons for failure of the software projects is inaccurate estimations of the cost and schedule. In the conventional software development Algorithmic and Expert Based techniques are used to predict the effort, duration and cost of the software project. But they are not providing



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Author information

Authors and Affiliations

**Department of CSE, Aditya Engineering College,
Surampalem, India**

Sripada Rama Sree & Chatla Prasada Rao

Corresponding author

Correspondence to Sripada Rama Sree.

Editor information

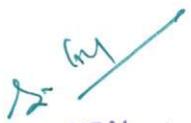
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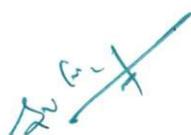
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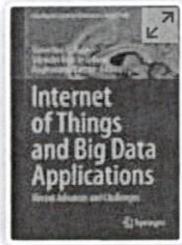
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Internet of Things and Big Data Applications pp 263–270

Periodical Development of Digital Watermarking Technique

R. Vasantha Lakshmi, S. Shyam Mohana, N. Radha & Durgesh Nandan 

Chapter | First Online: 25 February 2020

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Abstract

Digital watermarking technique used to hide the information. Wide uses of internet that has increases the access of digital data like image, audio and video. There is a chance to theft the data without permission of the owner of data. To protect the copyrights of information digital watermarking is required. In this paper, the brief review on digital watermarking techniques is evaluated and described. The watermarking is produced since the image contented and could be preserved as an arithmetical impression of finger print of the image. By way of a change based on procedure is cast-off to encrypt the evidence in the histogram area that

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Author information

Authors and Affiliations

**Department of ECE, Aditya Engineering College,
Surampalem, East Godavari, India**

R. Vasantha Lakshmi, S. Shyam Mohana & N. Radha

**Accendere Knowledge Management Services
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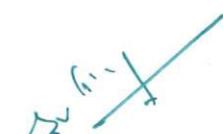
Corresponding author

Correspondence to [Durgesh Nandan](#).

Editor information

Editors and Affiliations

**Department of Automatics and Applied
Software, Aurel Vlaicu University of Arad, Arad,
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Prof. Dr. Valentina E. Balas

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(Autonomous), Hyderabad, India**

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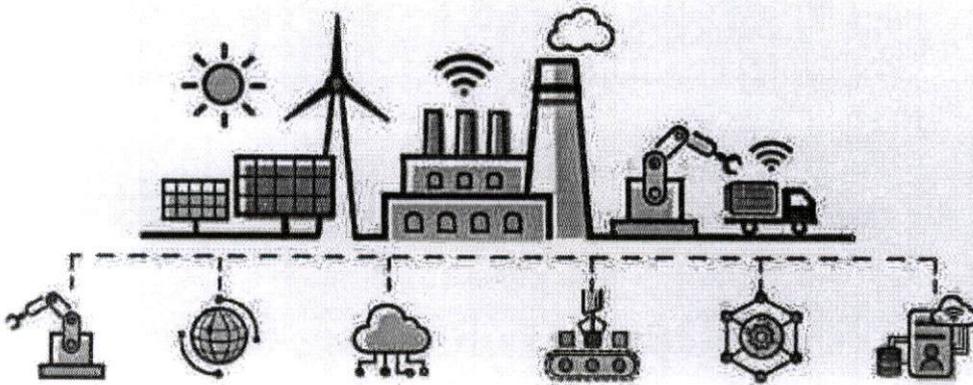
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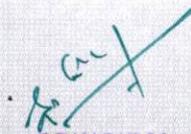
RENEWABLE ENERGY: RESEARCH, DEVELOPMENT AND POLICIES

ENERGY HARVESTING TECHNOLOGIES FOR POWERING WPAN AND IOT DEVICES FOR INDUSTRY 4.0 UP-GRADATION



Rajesh Singh • Anita Gehlot
M.A Inayathullaah • Anuj Jain
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time application.

Chapter 9 proposed an architecture where in the bins XBee network is used to connect nearby control unit of local municipal authority and from the control authority, LoRa network is used to communicate to long range and also these bins are assisted with solar panel for providing the power supply to devices that are existed in the architecture. Chapter 10 presented the study to optimize the process parameters for biofuel production by transesterification of algal oil using KOH as catalyst. (Imprint: Nova)

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Chapter

ENERGY HARVESTING AND STORAGE

P. S. Ranjit¹, Amit Kumar Thakur²

¹Aditya Engineering College (A), India

²Lovely Professional University, India

ABSTRACT

Petroleum derivatives are limited and environmentally expensive. Practically, Eco-friendly energy can be obtained from nuclear fragmentation or capture from neighboring sources. A vast amount of energy, such as sunlight, wind, and tide, is generally accessible and vast developments are being made to capture it productively. Unlike the completion of the scale, there are tiny amounts of 'waste' energy that could be helpful when captured. The recovery of even a small amount of this energy would have an essential financial and ecological effect. This is where energy harvesting takes place.

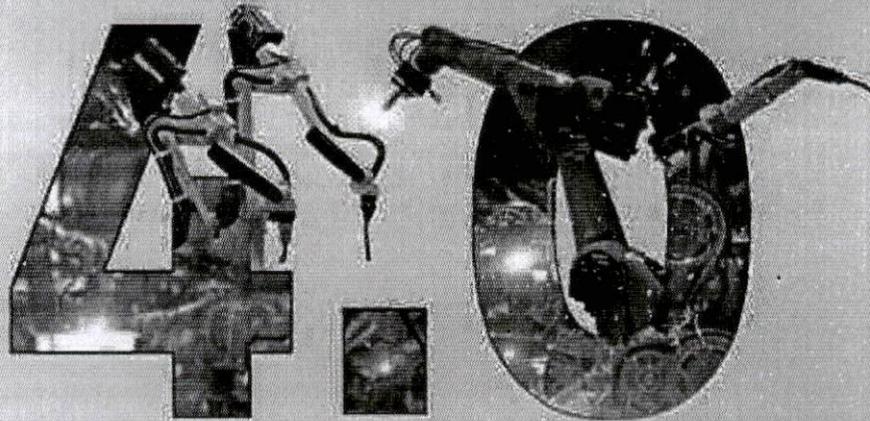
Energy harvesting is a method by which energy is obtained from external sources captured and stored for tiny, wireless independent devices, which are used in portable electronics and wireless sensor networks. The historical backdrop of energy harvesting goes back to the windmill and the waterwheel. People have been searching for ways to store energy from heat and vibration for many centuries. The desire to power sensor networks and mobile devices without batteries is one of the driving forces behind the quest for new energy harvesting devices. An attempt has been made in this section on energy harvesting (thermal and solar energies) and energy storage for sustainable development.

* Corresponding Author Email: psranjit1234@gmail.com.

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COMPUTER SCIENCE, TECHNOLOGY AND APPLICATIONS

LoRA and IoT networks for Applications in Industry



Anita Gehlot • Rajesh Singh
Ravindra Kumar Sharma
Kamal Kumar Sharma
Editors

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Dr. Anita Gehlot
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importance of fire safety in smart city and building along with the role of IoT for meeting the requirement.

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Chapter 4

ESSENTIAL ASPECTS OF DAY TO DAY LIFE AND ITS INFLUENCE ON INDUSTRY 4.0

P. S. Ranjit^{1,} and Amit Kumar Thakur²*

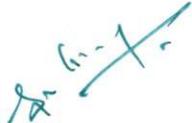
¹Aditya Engineering College(A), Surampalem, Andhra Pradesh,
India

²Lovely Professional University, Punjab, India

ABSTRACT

Some of the vital elements that play an important role in our day to day life are food, power, and transport. These are regarded as major factors of human existence. Based on this perspective, the chapter deals with significant sustainable elements of smart agriculture, lighting, and parking. Firstly, smart agriculture is a methodology for altering and reorienting rural generation frameworks and food value chains to promote and ensure the safety of sustenance in the context of environmental change. Secondly, lighting incorporates the use of both counterfeit light sources, such as lights and lighting devices, just as standard lighting is done by sunlight. The central theme of the chapter deals with smart parking. Finding a parking space for drivers to park their vehicles has always ended up with the disillusioning problem. Identifying an appropriate parking space has been troublesome factor for drivers since it creates a heavy traffic jam at the

*Corresponding Author's Email: psranjit1234@gmail.com.


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