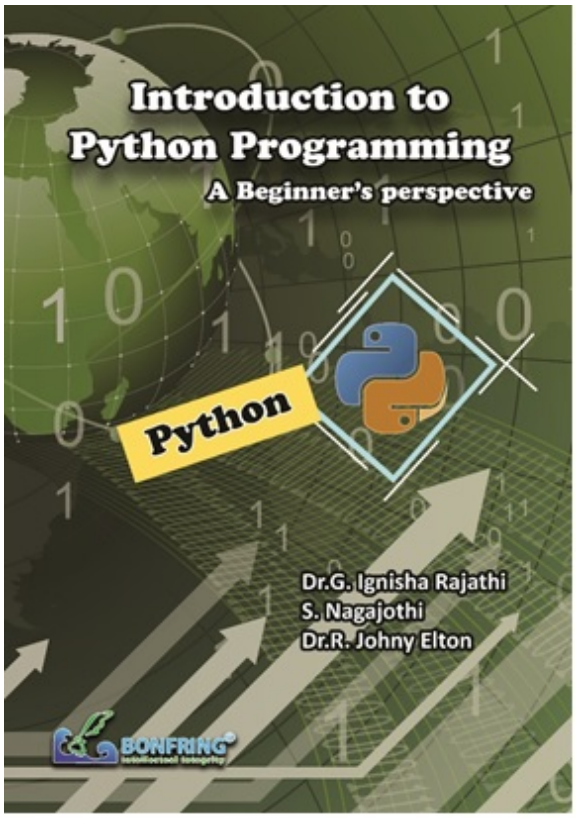
Introduction to
Python Programming
A Beginner's perspective
Python
Dr.G. Ignisha Rajathi
S. Nagajothi
Dr.R. Johny Elton
BONFRING


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Dr. G. Ignisha Rajathi received her degrees - Bachelor of Engineering and Master of Engineering as a rank holder, in the discipline of Computer Science and Engineering under Anna University, Chennai. She completed her Doctorate in the Faculty of Information and Communication Engineering under Anna University, Chennai. Having 13 years of teaching experience, she is presently working as Assistant Professor in the Department of Computer Science and Engineering at Sri Krishna College of Engineering and Technology, Coimbatore, India. She has marked her areas of interest as Medical Imaging, Image processing, Soft Computing. She has published more than 15 research articles in Journals, including high-impact versions and in various Conferences. She has published books and patents. She has trained the police force in fundamentals of computers and has delivered many invited talks and guest lectures, also engaged in consultancy projects.
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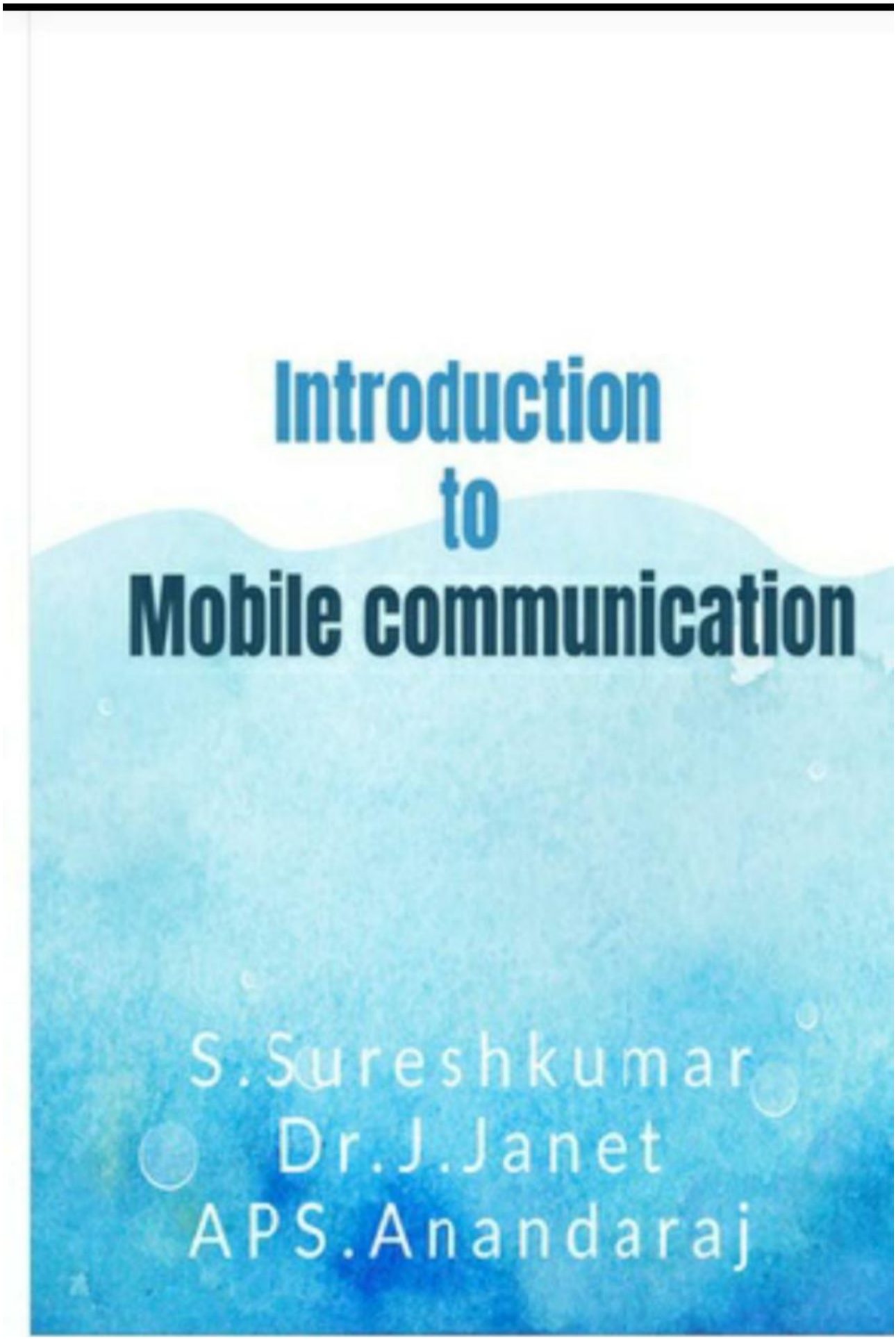
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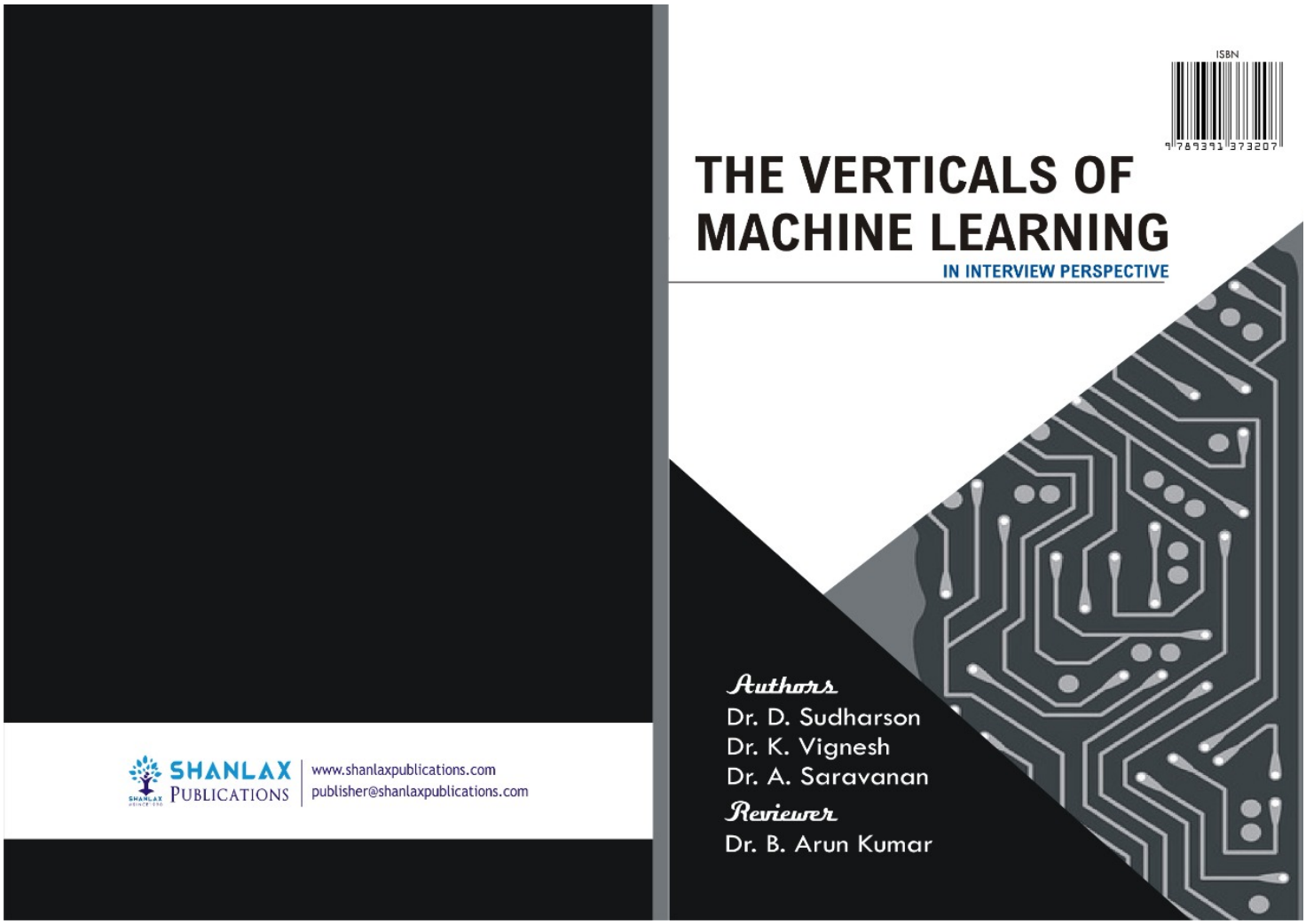
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Efficient Utilization of Recycled Concrete Aggregates for Structural Applications—An Experimental Study

Authors Authors and affiliations

Jagan Sivamani ✉, T. R. Neelakantan, P. Saravana Kumar, C. Mugesh Kanna, H. Vignesh Harish, M. R. Akash

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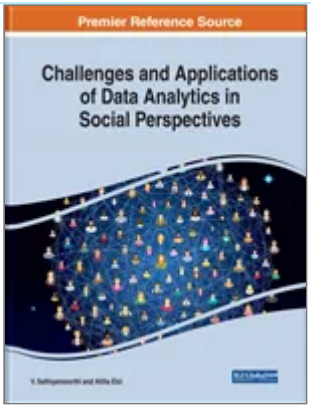
Abstract

Utilization of recycled concrete aggregates as an alternative material for natural aggregates in concrete have been of greater importance due to its disposal problems followed by the problem on scarcity in construction materials namely aggregates. This paper presents a study on the mechanical properties of concrete manufactured with recycled aggregates collected from a 10 year old demolished building at the institute. Recycled aggregates were immersed in water for 24 h before its utilization in concrete to achieve surface saturated dry density. A total of 8 batches of Recycled Aggregate Concrete and 2 batches of Normal Aggregate Concrete under different replacement levels of 0%, 10%, 20%, 30% and 40% and at two w/c ratios of 0.45 and 0.5 were manufactured. Various parametric tests such as compressive strength, split tensile strength, flexural strength and elastic modulus were performed to study its mechanical properties at the age of 7 days and 28 days. Results indicate that the mechanical properties of RAC was greatly influenced by the w/c ratio as the pre-saturation of recycled aggregates for



Application of Data Analytics in Emerging Fields

Sujaritha M. (Sri Krishna College of Engineering and Technology, India), Kavitha M. (Sri Krishna College of Engineering and Technology, India) and Fenila Naomi J. (Sri Krishna College of Engineering and Technology, India)

Source Title: Challenges and Applications of Data Analytics in Social Perspectives (/book/challenges-applications-data-analytics-social/237004)

Pages: 20

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Abstract

Data, which is available in abundance and in accessible forms, if analyzed in an efficient manner, unfolds many patterns and promising solutions. The present world is moving from the information age to the digital age, entering a new era of analytics. Whatever the end user does is recorded and stored. The purpose of data analytics is to make the "best out of waste." Analytics often employs advanced statistical techniques (logistic regression, multivariate regression, time series analysis, etc.) to derive meaning from data. There are essentially two kinds of analytics: 1) descriptive analytics and 2) predictive analytics. Descriptive analytics describes what has happened in the past. Predictive analytics predicts what will happen in the future.

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Introduction

IDC predicts that by 2025, the total amount of digital data created worldwide will rise to 175 zettabytes (from approximately 40 zettabytes in 2019), ballooned by the growing number of devices and sensors. The mission of this chapter is to make a clear understanding of why Analytics? Where to use Analytics? Outcome of Analytics?

This Chapter provides in-depth foundation level knowledge that enables reader of this chapter to efficiently provide grounding in basic and advanced methods to Analytics and tools, including MapReduce and Hadoop in different field of study. The rate in which data is exponentially growing has led to the evolvement of many technologies to better utilize this data for timely and accurate decision making with the help of Analytics. This chapter adds a comprehensive coverage of Analytic algorithms specially meant for analyzing data at an in-depth level. Decision trees, Support Vector machines and Neural networks are considered to be highly effective in analyzing complex data for different domain. Variety of solutions can be provided for storing, managing, accessing, protecting, securing, sharing and optimizing the information once analytics are properly fitted. Different Analytics tools are used some are open source and some are paid. Paid Tools such as SAS, WPS, MS Excel, Tableau, Pentaho, Statistica, Qlikview, KISSmetrics KISSmetrics,WeKa, BigML. Free Tools such as R, Google Analytics, Hadoop, Python, Spotfire can be used for Analyzing the data.

The following subsection deals with different emerging trends in various fields, along with dataset, tools for processing the data and Analytical methods used. Some source of dataset are kaggle, catalog, etc which is available for public for research.

Information Analytics has a key job in improving your business. Here are 4 primary variables which imply the requirement for Data Analytics:

- **Accumulate Hidden Insights:** Hidden bits of knowledge from information are assembled and after that broke down as for business necessities.
- **Create Reports**: Reports are produced from the information and are passed on to the separate groups and people to manage further activities for a skyscraper in business.
- **Perform Market Analysis:** Market Analysis can be performed to comprehend the qualities and the shortcomings of contenders.
- **Improve Business Requirement:** Analysis of Data enables improving Business to client prerequisites and experience.

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32. An Automatic Diabetes Risk Assessment System Using IoT Cloud Platform

Authors: M. Sujaritha, R. Sujatha, R. Anitha Nithya, A. Sunitha Nandhini, N. Harsha

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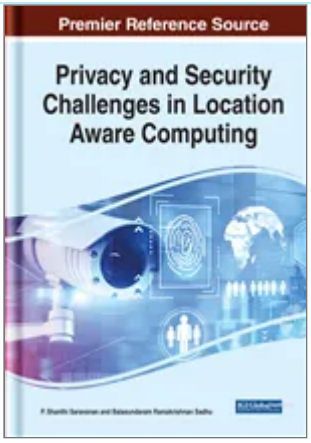
Abstract

Diabetes mellitus is a disease that impairs the body's ability to process blood sugar due to insufficient production of the hormone called insulin or the body's resistant towards insulin or both. There are three types of diabetes, namely, type 1, type 2, and gestational diabetes. Among these types, type 2 is common and it is associated with lifestyle risk factors such as inadequate physical activity, poor diet and increased body mass index and hereditary factors. If it is not managed carefully, diabetes can lead to a accumulation of blood sugars which can increase the risk of obtaining stroke, heart and kidney diseases. Therefore a personalized advisory system which monitors the health condition of the user through sensors acquire his/her diet and day-to-day activity information through interactive platforms, store them in a common cloud platform, process them through machine learning techniques, and provide valid health related personalized advices to manage their health condition is the need of the hour (American Diabetes Association, Diabetes Care 29:s4–s42, 2006). The proposed system uses an IoT Cloud platform named ThingSpeak, where the sensor data can be sent to the cloud for storing, analyzing, and visualizing the data with MATLAB or other software and our own applications can be developed and operated by MathWorks. A web application has been developed and made available to the users to manage diabetes or prevent them from diabetes and its dangerous complications.



Security Attacks on Internet of Things

Sujaritha M. (Sri Krishna College of Engineering and Technology, India) and Shunmuga Priya S. (Sri Krishna College of Engineering and Technology, India)

Source Title: Privacy and Security Challenges in Location Aware Computing (/book/privacy-security-challenges-location-aware/265787)

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Abstract

Today's digital world has been turned into a classy one due to the emerging technology, Internet of Things (IoT). IoT is about connecting any device to any other device or object or person or any entity of interest. Through internet, the connectivity span is increased making it a fully linked environment. An attack is a threat that can harm any component of a system. In case of IoT, such attacks may take place at any level, software, hardware, network, etc. Stakeholders of IoT, designers, developers, or users must know the range of attacks associated with every segment of IoT. In this regard, this chapter gives an eye opener for getting familiarity with various types of attacks at all levels. Also, to take care of attacks prone systems, the concepts of threat modeling with supporting details are discussed in this chapter.

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Introduction

Introduction to IoT

Technology is endeavouring to reach it's pinnacle. Technology is getting evolved at a very faster rate. Internet of Things is one such devastating technology. There is a huge growth in this great field due to the significant development and easily affordable powerful devices such as sensors, Radio Frequency Identification (RFID) tags, Near Field Communication (NFC) cards, IoT, etc. But there are certain grey areas pulling it backward. One such is the security attacks triggered by intruders or hackers or malicious entities to shatter the privacy and security of any computing system (Atzori,2010). These attacks topple the privacy and security.

Many researchers are building security solutions like Honeypots, IDS, secure kernels, etc to overcome this problem (Biradar, 2018). It is essential to have a clear knowledge about the security attacks for developing a security model. Only a clear knowledge about the security attacks will pave way to achieve a perfect security model. So it is essential to have a deliberate idea about the security attacks. This chapter provides the security attacks targeting the internet of things.

IoT Applications and Challenges

IoT extends its beneficial hand to various disciplines viz., Smart Agriculture, Smart City, Supply Chain and Logistics, Smart Infrastructure, Healthcare systems and so forth. Many tasks like monitoring the system, tracking the inventory, enhancing customer service, data exchange etc has become very easy due to the advent of IoT (Suo, H, 2012). It is predicted that by 2022, the count of IoT devices connected to internet will cross 18 billion (Mosenia, 2010).

The system concentrates on device to device interaction, human to device interaction and performs data exchange. Though IoT renders many advantages, it is vulnerable to many security threats due to huge amount of system access and crippling IoT features (Sengupta,2020).

IoT Layers

IoT is the connection of interconnected objects with unique address and standard protocol for communication through internet infrastructure at any time (Kouicem, 2018). Based on the functionalities of IoT, it is broadly grouped into three layers namely Perception Layer, Network Layer and Application Layer. Figure 1 gives the illustration of the layers of IoT. Each layer is discussed in details so that it facilitates to know the security attacks on each of these layers.

Figure 1. Three tier layer architecture of IoT

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Perception Layer

Sensing the environment, identifying small objects and gathering required data is the major functionality of the Perception layer. It has sensing nodes or sensing devices with communication capability. Many types of devices are used to sense the environment like temperature sensor, humidity sensor, vibration sensor, proximity sensor, position sensor, radiation sensor, vision and imaging sensors, RFID tags, NFC cards GPS system, web camera, etc. With the help of these devices the remote location is sensed and the data about it is made ready for exchange.

Network Layer

This layer is in charge for data exchange and communication among all the nodes and device. It uses standard protocols for establishing the communication. Gateway is one of the significant components in this layer. It goes through all the data exchanges. Gate way is the protocol converter that sophisticates smooth communication. Gateway is capable to convert the data packets as per the protocol requirement of destination and as per the needs of architecture. Gateway is installed either at the starting point or at the end point of the network.

Application Layer

The application layer is responsible for service providing and determines set of protocols required for message exchange. This layer manages the whole IoT system which includes applications, business and profit models. User sophistication is taken care by this layer.

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Harshit Bhatt, Brij Bhushan Sharma, Aaditya Sharma, Ruchika Sharma, Meenakshi Sharma

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Customer Analysis Using Machine Learning Algorithms: A Case Study Using Banking Consumer Dataset

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Abstract. The aim of each enterprise is to achieve high revenue from the business and to stay in a high position from their competitors. To archive high revenue and high position from competitors the need of understanding the business consumers is a crucial one. However the firm business is completely dependent on the consumers the efficient analysis of consumers within the enterprises makes to achieve the business to high position. To perform effective consumer analysis, in this study different machine learning is studied and experimented. ML classifiers make to understand in-depth analysis about the consumer data and further enables to plan wise decision strategies to enhance the business revenue and consumer satisfaction intelligently. The use of different ML classifiers is to sort out how the customer prediction outcome changes accordingly to the ML classifier is applied. This makes to find the best ML classifier for the consumer dataset applied in this study. The experimental procedure is performed using different ML classifiers and the outcome achieved is captured and projected using various validity scores. This work applies different ML classifiers like K-NN, C4.5, Random Forest, Random Tree, LR, MLP and NB for customer analysis. The empirical results illustrate the C4.5 model achieves better accuracy prediction compare to other ML classifiers and also compared with the time complexity NB model works efficiently with running time.

Keywords. Artificial Intelligence, Business decision, Customer Prediction, Machine Learning

1. Introduction

CRM is an efficient tool that helps to build, manage, and analyze a customer relationship with enterprises. The use of CRM makes the enterprises efficiently collect, store and assess the consumer-related data intelligently and make it available across the enterprise business people [1]. The assessment of consumer data efficiently makes the firms understand in-depth patterns of consumer behavior and further enables them to create wise decision strategies to increases the business revenue and customer retention & acquisition wisely. To perform consumer analysis in CRM, Analytical CRM is

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Machine Learning Algorithms for Modelling Agro-climatic Indices: A Review

Authors | Authors and affiliations

G. Edwin Prem Kumar, M. Lydia

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Abstract

Modelling lays a solid platform to assess the effects of climate variability on agricultural crop yield and management. It also aids in measuring the effectiveness of control measures planned and to design optimal strategies to enhance agricultural productivity and crop intensity. Models that aid in predicting drought, soil quality, crop yield, etc. in the light of climate variabilities can go a long way in enhancing global food security. Efficient modelling of agro-climatic indices will simplify the upscaling of experimental observations and aid in the implementation of climate-smart agriculture. This paper aims to present a comprehensive review of the use of machine learning algorithms for modelling agro-climatic indices. Such models find effective application in crop yield forecasting, crop monitoring, and management, soil quality prediction, modelling evapotranspiration, rainfall, drought, and pest outbreaks. The research challenges and future research directions in this area have also been outlined.

Chapter

Microstructural and High Temperature Wear Characteristics of Plasma Transferred Arc Hardfaced Ni–Cr–Si–B-C Alloy Deposits

S. Gnanasekaran, Samson Jerold Samuel Chelladurai, G. Padmanaban and S. Sivananthan

Abstract

Due to the tough working environments, wear damage to nuclear reactor components is frequent. Usually, nuclear elements run at 573 k to 873 k. The feed water controller valves, used for the thundering of coolant flow, wear out faster among the reactor components. Austenitic stainless steels, using different methods for hardfacing, improve wear resistance to the cobalt and nickel alloys. Nickel based hardfacing is more resistant to wear than cobalt based hardfacing at high temperatures thanks to the solid oxide layers. Austenitic stainless-steel substrates generally favor nickel-based hardfaced (Ni–Cr-Si–B-C) over cobalt-driven hardfacing because this reduces radiation-induced nuclear activity. A well-known surface method for depositing nickel hardfacing, minimal dilution, alloys is the Plasma Transfer Arc (PTAs) weld technique. In this study the Ni-based alloy is hardfaced over a 316 L (N) ASS substratum with PTA hardfacing, for a dense of approximately 4–4.5 mm. The substrates and deposits were tested at different temperatures with a pin on disc wear (room temperature, 150 and 250°C).When grinding with 1000 grain SiC abrasive paper, the wear test samples were polished to the roughness value (Ra) of less than 0,25 m.The deposit showed a variety of wear mechanisms regarding the test temperature. Using friction and wear values and wear analysis, the wear mechanisms were determined. There was a considerable wear loss at room temperature (RT).At 423 K operating heat, mild ploughing at short sliding distances and tribo-oxidation were carried out with increasing sliding time.The primary wear mechanism was adherence at the time of operating temperature at 623 K, but as the sliding distance widened, tribo-oxidation improved. In combination with a working hardened substrate, the formation of an oxide layer could significantly reduce the wear loss of nickel-based alloys.

Keywords: Austenitic stainless steel, PTA hardfacing, Wear, Microstructure

1. Introduction

Austenitic type 316 L (N) is commonly used in fast-breeder (FBR) reactors at temperatures between 573 K and 874 K as structural material. Austenitic stainless

Chapter – 16

TDMA BASED ENERGY EFFICIENT CLUSTER ROUTING APPROACH FOR SENSOR NETWORKS

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Abstract

Balancing the energy consumption and location accuracy is one of the critical tasks in WSN. Energy consumption of sensor nodes is measured in terms of route discovery, packet forwarding and data transmission. In this research work, it is proposed that scheduling based Optimal Energy Clustering Scheme (SOECS) to attain the maximum location accuracy and energy efficiency during route maintenance. In the proposed scheme, cluster is formed and TDMA scheduling algorithm is introduced to improve the energy efficiency using stable routes and scheduling table.

Index Terms : TDMA, WSN, Energy efficiency, location accuracy and scheduling algorithm

****

INTRODUCTION

I past few decades, Wireless Sensor Networks (WSN) plays a vital role in wireless network and growth of WSN rises rapidly. The wider detection range and flexibility was provided effectively due to radio waves and sensor nodes. The real time environment changes are detected by sensor nodes. The data gathering process is done by the sensor nodes and data aggregation is implemented to save the energy. Energy efficiency is the major issue in WSN and the consumption of energy can be measured based on various applications.

In this research work, cluster is formed with cluster heads which is chosen based on residual energy, distance to sink node and node capacity to increase the network lifetime. In previous work, it is concluded that balancing energy consumption and location accuracy is the biggest task in the sensor network.

Internet of Things, Artificial Intelligence and Blockchain Technology pp 241-258 | Cite as

Decision Support Mechanism to Improve a Secured System for Clinical Process Using Blockchain Technique

Authors Authors and affiliations

N. Pooranam, G. Ignisha Rajathi, R. Lakshmana Kumar, T. Vignesh

Chapter
First Online: 03 September 2021

Abstract

In the modern era, health monitoring is an essential day-to-day task for making a wealthy life. To maintain and enrich the process automation comes into picture. Blockchain acts as a secured system for transactions. Monitoring each patient's clinical tests and results has a

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Assistant Professor, Department of Mechatronics Engineering, Sri Krishna College of Engineering and Technology, Coimbatore, Tamil Nadu, India has presented paper titled **DATA SCIENCE: BEST PRACTICES IN DIGITAL TRANSFORMATION** in the One Day National Seminar on "Tech Trends 2021: Issues and Emerging Challenges and Changes in the Student - Centric Learning and Best Innovative Practices for Quality Enhancement in Education" organized by the Global Multidisciplinary Research & Academic Foundation (GMRAF), Chennai at

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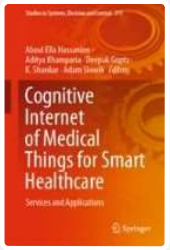

Cognitive Internet of Medical Things for Smart Healthcare pp 195–209

Internet of Medical Things (IoMT) Enabled Skin Lesion Detection and Classification Using Optimal Segmentation and Restricted Boltzmann Machines

A. Peter Soosai Anandaraj, V. Gomathy, A. Amali Angel Punitha, D. Abitha Kumari, S. Sheeba Rani & S. Sureshkumar

Chapter | First Online: 20 October 2020

Part of the Studies in Systems, Decision and Control book series (SSDC,volume 311)

Abstract

In recent times, Internet of Medical Things (IoMT) and cloud enabled healthcare applications and services finds helpful for effective decision-making. Melanoma is the serious kind of skin cancer, results to high death rate. Earlier identification of skin cancer

can leads to maximum survival rate. But the diagnosis process becomes difficult and expensive because of the need of medical experts and complex medical equipments. To overcome this issue, the latest developments in IoMT based decision making system with maximum performance can be used. This study introduces a new IoMT based skin lesion detection and classification model using Optimal Segmentation and Restricted Boltzmann Machines (RBM), named OS-RBM model. The proposed OS-RBM model involves a series of steps namely image acquisition, gaussian filtering (GF) based preprocessing, segmentation, feature extraction, and classification. Then, optimal segmentation using artificial bee colony (ABC) with kapur's thresholding takes place. Besides, histogram and texture feature extraction will be carried out. Finally, RBM is applied as a classifier to detect and classify the existence of skin lesion in the dermoscopic images. A detailed simulation analysis takes place for ensuring the better outcome of the OS-RBM model and the results are assessed under diverse performance measures. The experimental outcome ensured the effective classification performance of the OS-RBM model with the maximum sensitivity of 96.43%, specificity of 97.95% and accuracy of 95.68%.

Keywords

Skin lesion **Segmentation** **Deep learning**

Classification **Restricted Boltzmann machine**

About this chapter

Cite this chapter

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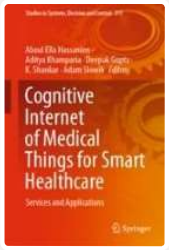

Cognitive Internet of Medical Things for Smart Healthcare pp 87–103

Optimal SVM Based Brain Tumor MRI Image Classification in Cloud Internet of Medical Things

S. Chidambaranathan, A. Radhika, Veeraraghavan Vishnu Priya, Surapaneni Krishna Mohan & M. G. Gireeshan

Chapter | First Online: 20 October 2020

Part of the Studies in Systems, Decision and Control book series (SSDC,volume 311)

Abstract

At recent days, massive increase in the Internet of Things (IoT) and cloud computing receives numerous healthcare services to the subsequent stage. On the other hand, brain tumor (BT) is recognized as a deadly disease that enhances the annual mortality rate. This study projects a new detection and diagnosis model for BT. Here, two main stages are

involved namely feature selection and classification. Initially, examination of the patients takes place using medical devices linked to IoT. When the MRI images of a person are acquired, pre-processing will takes place. Next, improved gravitational search algorithm with genetic algorithm (IGSAGA) model is applied for filtering the features and optimal support vector machine (SVM) model is applied for classification processes. The results are validated using a benchmark BRATS dataset and the experimental outcome indicated the supremacy of the projected model.

Keywords

IoMT **Brain tumor** **Classification**

Gravitational search algorithm **SVM**

Cite this chapter

Chidambaranathan, S., Radhika, A., Priya, V.V., Mohan, S.K., Gireeshan, M.G. (2021). Optimal SVM Based Brain Tumor MRI Image Classification in Cloud Internet of Medical Things. In: Hassanien, A.E., Khamparia, A., Gupta, D., Shankar, K., Slowik, A. (eds) Cognitive Internet of Medical Things for Smart Healthcare. Studies in Systems, Decision and Control, vol 311. Springer, Cham. https://doi.org/10.1007/978-3-030-55833-8_5

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Advances in Smart System Technologies pp 261–272

Quick Search Optimization Algorithm-Based Implementation of Virtual Power Plant for Distribution Network

K. Lakshmi, T. Kesavan, R. Kavin, S. Sheebarani Gnanamalar, M. Senthilkumar & V. Gomathy

Conference paper | First Online: 30 August 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1163)

Abstract

Virtual power plant (VPP) is one of the developing concepts for integrating of renewable energy source (RES) photovoltaic (PV), air turbines (WT), or integrated heat and power generators as a single energy plant, coordinated and constructed. This paper proposes quick search optimization algorithm based monitoring and control of the virtual

power station in the distribution network. The proposed algorithm is used to manage electrical power in the distribution network to reduce the purchased power of the network. This objective is achieved through optimal selection of renewable-based distributed generators, control of load and optimization of energy storage components. In these proposes, two main renewable energy sources of wind power and solar power are integrated with grid to manage the energy in VPP. In this, quick search algorithm is used for forecasting the generate power from windmill and solar cell based on wind circulation and earth temperature, respectively, and also calculating power demand which depends on the load condition. The MATLAB software is used to model the VPP and the performance analysis of generating power of sources and power demand of load.

Keywords

Virtual power plant **Renewable energy sources**

Wind power generation system

Distributed energy resources

Cite this paper

Lakshmi, K., Kesavan, T., Kavin, R., Sheebarani Gnanamalar, S., Senthilkumar, M., Gomathy, V. (2021). Quick Search Optimization Algorithm-Based Implementation of Virtual Power Plant for Distribution Network. In: Suresh, P., Saravanakumar, U., Hussein Al Salameh, M. (eds) Advances in Smart System Technologies. Advances in Intelligent Systems and Computing, vol 1163. Springer, Singapore. https://doi.org/10.1007/978-981-15-5029-4_21

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Intelligence in Big Data Technologies—Beyond the Hype pp 559–569

Performance Analysis of Grid Connected Modified *Z*-Source High Step up Inverter for Solar Photovoltaic System

Y. Pavithra & K. Lakshmi

Conference paper | First Online: 26 July 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1167)

Abstract

The modified *Z*-source inverters, which ensure better power conversion in multiple voltage levels to achieve build on power quality, improved electromagnetic compatibility, voltage boosting and minimum switching losses. For the purpose of comparison, examination of existing *Z*-source inverter topologies under different switching

schemes were made, and new modified high step up *Z*-source inverter topologies are proposed. Proposed inverter with maximum constant boost switching scheme is employing third harmonic injection for better voltage boost inversion. A new *Z*-source network-based DC/AC converter topology is carried out and compared with other existing *Z*-source inverter-based DC/DC converters to be acquired at the front side of the solar PV power supply system with maintaining constant output voltage and fed to grid interconnection.

Keywords

Z-source inverter **Lower switching losses**

Photovoltaic system **Power conditioning system**

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21 | OriginalPaper | Chapter

Design and Implementation of SEPIC Converter Based Nine-Level MLI Fed IM with PI, FLC, and ANN Controller

Authors: S. Karthikeyan, K. Lakshmi, S. Gobhinath

Publisher: Springer Singapore

Published in: Recent Trends in Mechanical Engineering

Abstract

In recent year, the field of power converters has experienced a large growth due to confluence of several factors. Moreover, these advances in semiconductor fabrication technology have made it possible to significantly improve the voltage and current handling capabilities and the switching speeds of power semiconductor devices, which make up the converter to design for many applications. Whereas industrial sectors are facing many difficulties to convert the fixed voltage into variable voltage. For that reason, a DC-to-DC conversion process is established from conventional methods like voltage divider, potentiometer to get output voltage less than the input supply; in that case, this will lead to power losses. The DC-to-DC converter topologies can be divided into two major types, depending on whether or not they have galvanic isolation between the input supply and the output circuitry. DC-to-DC converters are used in portable electronic devices such as mobile application and laptop computers, which are supplied with power from batteries primarily. Such electronic devices often contain several sub-circuits, each with its own voltage level requirement different from that supplied by the battery or an external supply. Additionally, the battery voltage declines as its stored energy is drained. Switched DC-to-DC converters offers a method to increase voltage from a partially lowered battery voltage, thereby saving space instead of using multiple batteries to accomplish the same thing. This research work is focused on a performance analysis of SEPIC converter fed nine-level inverter with artificial neural network for induction motor; the performance analysis is carried out for Boost–SEPIC converter fed multilevel inverter IM drive system. Comparison is made with PI, Fuzzy logic, and ANN controllers. The simulation and experimental results validate the various time domain parameters.

2021 | OriginalPaper | Chapter

Performance Enhancement of Permanent Magnet Synchronous Motor Employing Iterative Learning Controller with Space Vector Pulse Width Modulation

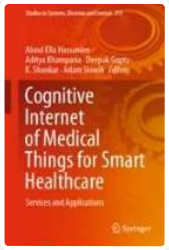
Authors: N. Subha Lakshmi, S. Allirani, S. Sundar, H. Vidhya

Publisher: Springer Singapore

Published in: Advances in Smart Grid Technology

Abstract

The PMSM generates the magnetic flux on its own as the rotor has permanent magnet and thus the motor never depend on any exterior source. The torque and speed ripples are the some of the disadvantages which affect the performance of drive. This paper proposes the performance enhancement of PMSM employing ILC and SVPWM driven by FOC to reduce both the speed and torque ripple. The result is compared with conventional PI controller. The outcome shows the reduction in torque and speed ripple which enhances the drive performance by using the above technique. The hardware result is obtained from DSP controller.



Cognitive Internet of Medical Things for Smart Healthcare pp 181–193

An Intelligent Internet of Medical Things with Deep Learning Based Automated Breast Cancer Detection and Classification Model

Mahantesh Mathapati, S. Chidambaranathan, Abdul Wahid Nasir, G. Vimalarani, S. Sheeba Rani & T. Gopalakrishnan

Chapter | First Online: 20 October 2020

241 Accesses

Part of the Studies in Systems, Decision and Control book series (SSDC,volume 311)

Abstract

In recent decades, breast cancer (BC) is a significant cause of high mortality rate among women. The earlier identification of breast cancer helps to increase the survival rate by the use of appropriate medications. At the same time, internet of medical

things (IoMT) and digital mammography finds helpful to diagnose breast cancer effectively in the beginning level itself. This paper presents an intelligent IoMT based breast cancer detection and diagnosis using deep learning model. IoMT based image acquisition process takes place to gather the digital mammogram images. The proposed model performs a set of processes namely preprocessing, K-means clustering based segmentation, local binary pattern (LBP) based feature extraction and deep neural network (DNN) based classification. The presented LBP-DNN model has the capability of effectively detecting and classifying breast cancer from mammogram images. The LBP-DNN model has been validated using MIAS database and an extensive comparative analysis is carried out to evaluate its performance. The experimental results ensured the superior performance of the LBP-DNN model with the maximum sensitivity of 71.64%, specificity of 75.87% and accuracy of 70.53%.

Keywords

Digital mammogram **Breast cancer**

Deep learning **Feature extraction**

Internet of medical things **MIAS database**

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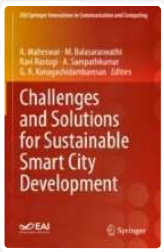

Challenges and Solutions for Sustainable Smart City Development pp 91–123

Deep Learning-Based Activity Monitoring for Smart Environment Using Radar

N. Susithra, G. Santhanamari, M. Deepa, P. Reba, K. C. Ramya & Lalit Garg

Chapter | First Online: 23 May 2021

Part of the EAI/Springer Innovations in Communication and Computing book series (EAISICC)

Abstract

Monitoring the environment plays a significant role in the evolution of a smart city with enhanced safety, comfort, and security. One promising technology for smart environment monitoring is the radar-based moving object tracking and classification. Radar-based technology is known to provide better solutions compared to vision-based systems as the

latter is prone to the adverse effects of lighting and weather conditions. Radars operating in mm-wave range are preferred due to small size, good angular resolution, small apertures, and low cost. The signature waveform received from the moving object is used to estimate the range and the velocity of multiple targets based on Doppler drift. Also, the micro-Doppler effect on the return signal that occurs due to the micromotion dynamics such as vibrations or rotations can be used to identify the specific type of the target. This book chapter provides an overview of different types of radars and their respective signal processing aspects used for detecting the human and animal activity. Moreover, this chapter explains the deep learning algorithms used for detection and classification of human and animal activity. Thus the intelligent radar systems add greater value to the smart environment compared to other non-radar methods.

Keywords

Smart environment **Radar** **Deep learning**

Detection and classification **Micro-Doppler**

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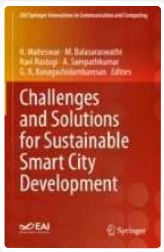

Challenges and Solutions for Sustainable Smart City Development pp 213–229

Smart Waste Management Model for Effective Disposal of Waste Management Through Technology

Ramalatha Marimuthu, M. Shanthi, Supavadee Aramvith & S. Sivaranjani

Chapter | First Online: 23 May 2021

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Abstract

Generation of waste is an essential part of ecological cycle and is found in every element of ecosystem. With an increase in population and an expansion in urbanization, waste production has become area centric. In addition, the developments in technology and luxury appliances to meet the demands of this urban population have increased multiple types of

solid waste which differ in composition and their ability to decompose. For example, recently we have seen an increase in medical waste, e-waste, and also chemical waste which had not been there before three decades. Hence waste management becomes an important responsibility of all the stakeholders producing waste and authorities handling human locale and ecosystem. Waste management refers to a waste collection system, including its transportation, disposal, or reusing, and it must be effectively handled to avoid its undesirable effect on the health and the environment.

Increase in urbanization, especially in developing countries like India, accounts for most of the irregularities in governance since the infrastructure, human resources, and facilities have not been preplanned for the rapid increase. According to the Census of India report in 2011, the urban population crossed 377 million accounting for 31% of the total population. According to Kumar and Gaikwad (2004), the rate of urbanization increases if the urban population exceeds 25% of total population. This in turn can produce a sharp rise in waste generation also, which in fact is corroborated by the data collected on the municipal solid waste (MSW). With generation of 133,760 tons of municipal solid waste per day, it is very much essential for us to go smart for both collection and treatment since the former is only 68.14% and the latter is a mere 19.35% of

generation. Cities top the list in generation per capita in India with 0.17 kg in small towns compared to 0.62 kg in cities.

With the prediction toward more increase in population, this is expected only to increase and not decrease in any way. With India's MSW management still in landfill methods, it is going to be difficult to be efficient in waste management even in the near future. It is essential for us to turn to technology for waste management immediately. For example, the wastes we are creating every day can be converted into something good, such as electricity, heat, or fuel. In addition, the administration of the waste in different environments like rural and urban can be effectively planned with the help of technology. Internet of Things has been used in governance of waste management systems in advanced countries, right from the waste collection and classification to waste transformation, thus creating an effective recycling and connected systems across utilities.

This chapter discusses the types of waste, waste generation, and waste management with a difference in rural and urban environment and the various considerations connected with both. In addition, the various technologies used for the different steps in waste management of the different types of waste have been elaborately discussed.

About this chapter

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Microgrid Technologies

Chapter 6

Reconfigurable Battery Management System for Microgrid Application

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Book Editor(s):C. Sharmeela, P. Sivaraman, P. Sanjeevikumar, Jens Bo Holm-Nielsen

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Summary

Battery packs are formed by the interconnection of a greater number of battery cells. These battery packs are used in many electrical and electronics applications like sustainable energy systems, robotics, electric/hybrid vehicles and energy storage system in microgrid and smart grids. As a result, battery-based applications require a well-designed battery pack. Most of the research articles deal with the protection circuit, cell-balancing approach and battery management system. Nowadays, researchers are looking into reconfigurable based battery pack design to overcome the issues faced by the traditional system and conjunction with battery management systems like safety problems, low reliability, less energy efficiency and short lifetime. The most important characteristics of a reconfigurable battery management system are the arrangement of battery dynamically reconfigured concurrently depending upon the current status of battery cells using switching control according to load demand. Numerous research articles pertaining to reconfigurable battery pack techniques have been designed and implemented in real-time that makes the cell balancing condition at the time of charging/discharging cycle and also offer the fault-tolerant capability. This proposed chapter gives an overview of the reconfigurable battery system along with its challenges.

Electrical and Electronic Devices, Circuits, and Materials: Technological Challenges and Solutions

Chapter 20

Mitigation Techniques for Removal of Dust on Solar Photovoltaic System

P Pandiyan, S Saravanan, T Chinnadurai, Tiwari Ramji, N Prabaharan, S Umashankar

Book Editor(s):Suman Lata Tripathi, Parvej Ahmad Alvi, Umashankar Subramaniam

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Summary

In this chapter, the origin of the dust that settles on the outermost surface of the solar photovoltaic (PV) panels and the consequences of that on the characteristics of solar panels, namely electrical, thermal and optical characteristics due to dust accumulation are reviewed briefly. Moreover, the variety of techniques used for cleaning the solar panel are also discussed to choose the best method depending upon the solar plant capacity. The dust property as well as dust deposition rate varies based on the location all over the world. The deposition of dust depends on a variety of factors such as environmental factors, installation factors and installation site. The chapter helps researchers and academicians who are working in the field of factors influencing the dust accumulation on solar panels, and finally the mitigation methods for enhancing the performance of the solar PV panels.

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Artificial Intelligence based Facial Emotion Recognition

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***Abstract*— Facial emotion recognition (FER assumes a noteworthy job in the field of Artificial Intelligence. This paper focuses on preparing facial feelings from pictures as opposed to sensors. Cohn-Kanade(CK) database is utilized to advance investigation into naturally identifying individual facial expressions. But it has three constraints which have moved toward becoming apparent.1)AU codes are approved however feeling names are not validated.2)Lack of basic execution metric against which to assess new calculations. 3)Standard conventions for regular databases have not emerged. To address these and different concerns, we present the Extended Cohn-Kanade(CK+) database with seven particular facial emotions. For profound learning framework, Convolution Neural Network(CNN) is used.CNN is actualized utilizing Tensorflow. OpenCV is an open source PC vision and AI programming library.It was work to quicken the utilization of machine discernment in the businessitems.**

Keywords*— *Convolution Neural Networks, Cohn-kanade Dataset, Tensorflow , OpenCV, ActionUnitcode

I. INTRODUCTION

Feelings regularly intercede and encourage collaborations among people. In this manner, understanding feeling regularly carries setting to apparently odd and complex social correspondence. Feeling can be perceived simpler, increasingly down to earth technique by looking at outward appearances[4, 6]. There are seven kinds of human feelings demonstrated to be generally conspicuous crosswise over various societies: outrage, sicken, dread, bliss, misery, shock, disdain. Strikingly, notwithstanding for complex articulations where a blend of feelings could be utilized as [7] descriptors, culturally diverse understanding is as yet watched Therefore an utility that identifies feeling from outward appearances would be generally material. Such a progression could acquire applications medication, promoting and excitement. The assignment of feeling acknowledgment is especially difficult for 2 reasons: 1. There is no huge image preparation database, 2. ordering feeling can be difficult relying upon whether the info picture is static or a transition outline into an outward appearance[3,5]. The last issue is especially difficult for ongoing discovery where outward appearances differ powerfully. Most utilizations of feeling acknowledgment look at static pictures of outward appearances. We research the use of convolutional neural systems (CNNs) to feeling acknowledgment continuously with a flow of video data. Considering computational prerequisites and multifaceted nature of CNN algorithm, improving the efficient calculation method for the classificati on of the by-outline casing is critical. Furthermore, representing varieties in light and subject pointing in a non laboratory situation is testing[1,3].This paper suggest up a framework for recognizing living being feelings in various scenes, and points continuously. The outcome is a novel application where a feeling showing emoticon is superimposed over the subjects' countenances.

II BACKGROUND

In the course of the most recent two eras, specialists have specifically propelled human being facial feeling acknowledgment by PC visualization systems[8]. Generally, there have been numerous ways to deal with this issue, including utilizing Pyramid-Histograms-of-Angles (PHOG) helped LBP and RNN . In any case , ongoing top entries of 2015 Reactions in the Rough (EmotiW 2015) challenge for motionless pictures utilized profound convolutional-neural-systems (CNN), producing maximum of 62% results exactness. An ongoing improvement by G. Levi et. al demonstrated significant improvement in facial feeling acknowledgment utilizing a CNN. The creators tended to two striking issues: 1) a limited quantity of information accessible for preparing profound CNNs,2) appearance variation usually caused by variations in illumination. They utilized Local-Binary-Patterns (LBP) which change pictures to an enlightenment 3D-space which fill in as a contribution to CNN. This extraordinary information handling is connected to different openly accessible models, for example, CNN. This prototype is then prepared on the huge CASIA, a WebFace informational index, which is a littler dataset of named facial feelings discharged for the EmotiW 2015 test . Last outcomes demonstrated a result exactness of about 54.56%, an improvement of 15% high pattern cuts .It pictures the 1st convolutional layer of CNN, uncovering various portions streamlined highlight location. this modified CNN neural system is prepared for facial acknowledgment, and uninhibitedly accessible, This project uses CNN as a beginning stage in building up our own model. A prominent execution of a CNN to ongoing discovery of feelings from outward appearances is S.Oullet. The creator actualized a game, where a CNN was connected to info video stream to catch the person outward appearances. The work exhibited the practicality of executing a CNN in realtime by utilizing a running normal of the distinguished feelings from the information stream, decreasing the impacts of variety and commotion..

III APPROACH

This project builds up a operational model, and utilize 2 diverse uninhibitedly accessible datasets : all-encompassing Cohn-Kanade dataset (CK+) . The CK+ dataset, albeit little, gives well-defined outward appearances in a controlled

Analysis of Breast Cancer Images/Data Set Based on Procedure Codes and Exam Reasons

International Conference On Computational Vision and Bio Inspired Computing

ICCVBIC 2018: New Trends in Computational Vision and Bio-inspired Computing pp 1317-1324 | Cite as

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Chapter
First Online: 28 September 2020

Abstract

The abnormal growth of cells known as malignant tumors and also called as breast cancer. These types of tumors will affect other the entire body. Different types of cancer prevailing in the human body, the medical or scientific world are not sure about the exact cause of the disease. In this paper dataset are analyzed by the report by using screening mammogram, malignant neoplasm by using exam reasons and procedure codes. The classification rules are generated to represent the relationship between procedure code and exam reasons.

Keywords

Breast cancer Benign neoplasm Classification Data mining Malignant neoplasm Screening mammogram

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Differential Privacy Preservation Mechanism Using Bernstein Polynomial Function For Heart Disease Dataset

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Abstract: Information is put away in various frameworks as emerging technologies allows influential data gathering and processing. Protection and security have turn into a longstanding challenging issue with advances in data and communication innovation. Privacy preserving data mining makes the customer information more secure by means of data perturbation and also it makes it harder to identify a person in an occurrence of data is spilled. Machine learning has got attention recently due to an energetic advancement of differential privacy (DP). DP is golden response scheme to address the privacy protection in analysis of data but it is quite hard to implement on real world data. The proposed system uses Bernstein polynomial function under differential privacy for perturbation. Heart disease dataset is used in this work to analyze the performance between the original and the modified dataset using DP with the classifier models decision tree, linear model, random forest, SVM, linear model and neural network. The experiment results show the minor variations in the accuracy, sensitivity and specificity measures.

Keywords: Privacy Preserving Data Mining, Machine Learning, Differential Privacy, Bernstein Model

1. INTRODUCTION

Data collectors and decision makers frequently need to examine data containing confidential information of individuals. The customer behavior identified from collected data can be shared among different tech companies for business purpose[15]. The necessity increases for powerful and conceptually meticulous algorithms that are suitable for preserving privacy. In recent days, differential privacy has established as a great data protection paradigm [1]. DP allows companies to access data for investigation by ensuring the privacy of user groups. DP is a technology which ensures strong privacy; prevent data leakage and re-identifies people within a dataset [2]. Differential privacy enhancing technologies are used by Facebook for efficient data accessing and to provide data to the public without apparent data loss. DP principles are applied for the fulfillment of data protection and overcome the limitations on data generalization [3].

Privacy can be measured by various means. Most efficient privacy protection method scan be implemented that are reliable for handling data source attackers. Differentially private systems are designed in a way that nobody can predict the information. Two basic categories of perturbation techniques are used for arbitrarily adjusting the source data. DP is the widely

Experimental Evaluations of Malicious Node Detection on Wireless Sensor Network Environment

Publisher: IEEE

K.Sasi Kala Rani ; R. Vijayalakshmi All Authors

Abstract: In this modern era, each and every individual needs to utilize the communication medium for sending and receiving the respective data between source and destination entit... **View more**

Metadata

Abstract:

In this modern era, each and every individual needs to utilize the communication medium for sending and receiving the respective data between source and destination entities. A Wireless Sensor Network (WSN) environments provide such facility to clients to perform a successful and range free communication between source and destination. This paper utilizes the same logic of WSN in an enhanced way by means of adding some security metrics and associated communication strategies. The routing protocol consideration is a most import ant concern for every communication medium, in

PAPER • OPEN ACCESS

Fatigue Monitoring Using Real-Time Facial Expression Based on Neural Technique

K Sasikala Rani[1], N Kabilan[1], M Mohankumar[1] and Kumar M Nithiesh[1]

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https://doi.org/10.1088/1742-6596/1916/1/012116

Abstract

The face, as a crucial part of the body, communicates a great deal of information. When a driver is extremely tired, his or her facial expressions, as well as the frequency at which he or she wiggles, vary from those in a normal state. In this paper, we suggest a device that senses the driver's drowsiness and

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JCT COLLEGE OF ENGINEERING AND TECHNOLOGY

CERTIFICATE OF PRESENTATION

This certificate is awarded to

Dr. K. Sasikala Rani

for successfully presenting a paper at the

International Conference on Artificial Intelligence and Smart Systems (ICAIS 2021)

organised by JCT College of Engineering and Technology, Coimbatore, India on 25-27, March 2021.

Paper Title: **Blockchain driven IoT based Delish2Go Decentralized Food Delivery Application**

Author/s: **Dr. K. Sasikala Rani, S. Vishali**

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Classification of Malignant Melanoma using Convolutional Neural Networks

V Vijeya Kaveri[1], V Meenakshi[2], K A Saran Karthik[3] and S Shri Raam[3]

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https://doi.org/10.1088/1742-6596/1916/1/012070

Abstract

ScienceDirect

Materials Today: Proceedings
Volume 51, Part 8, 2022, Pages 2525-2529

Object Tracking Glove

V. Vijeya Kaveri [a], V. Meenakshi [b], R. Meena Devi [b], A. Kousalya [c], M. Sujaritha [a]

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Outline | Share | Cite

https://doi.org/10.1016/j.matpr.2021.12.279

Abstract

Hand gestures are a type of nonverbal communication that can be applied to a variety of sectors, including deaf-mute communication, human–computer interaction (HCI), medical applications, robot control and home automation. Various strategies have been used in hand gesture research articles, including those based on instrumented sensor technology and computer vision. In this paper, we have proposed an object tracking glove that uses simple hand motions and sensor technology to operate computer systems. With the assistance of the webcam the colour of the object over the glove is detected and therefore the color are going to be reflected on the PC screen, this will be accomplished with the utilization of IDE processing referred to as calibration. With an easy movement of the hand, the pointer are often moved to the acceptable spot on the PC during this application the hall sensor acts as a switch or button, which helps to open any menu or software application when the cursor is moved over the specified menu. Whenever the hall sensor is messed with the magnet then the data from the sensor passes to the microcontroller. This microcontroller sends data to the Bluetooth module, and the signals are then passed on to the system, allowing it to perform the actions. Our application controls the lights/fans of a room controlled using the glove.

Previous Next

Keywords

Hand gesture; Object detection; Tracking; Virtual reality; Virtual reality using Arduino

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J. Phys.: Conf. Ser **1916** (2022) 012238 https://doi.org/10.1088/1742-6596/1916/1/012238

Retraction

Retraction: Deep learning based Food Recognition using Tensorflow (*J. Phys.: Conf. Ser* **1916** 012149)

Published 10 January 2022

This article has been retracted by IOP Publishing following an allegation that this article contains text overlap from multiple unreferenced sources [1, 2]. IOP Publishing has investigated and agrees the article constitutes plagiarism. IOP Publishing also expresses concern regarding a number of nonsensical phrases used in the article, which suggests the article may have been created at least partly by artificial intelligence or translation software.

IOP Publishing wishes to credit the PubPeer commenters for bringing the issue to our attention.

The authors disagree to this retraction.

1. G. A. Tahir and C. K. Loo, "An Open-Ended Continual Learning for Food Recognition Using Class Incremental Extreme Learning Machines," in IEEE Access, vol. 8, pp. 82328-82346, 2020, doi: 10.1109/ACCESS.2020.2991810.

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Retraction published: 10 January 2022

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Efficient Method for Storing Health Record in Cloud Using Integrity Auditing and Data Sharing

K Rama Abirami[1], K P Ajaye[1], Roshan B L Amrrish[1] and Nishanthan A Arun[1]

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Journal of Physics: Conference Series, Volume 1916, 2021 International Conference on Computing, Communication, Electrical and Biomedical Systems (ICCCEBS) 2021 25-26 March 2021, Coimbatore, India

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Abstract

Identity based cloud storage authorization is proposed in this paper to provide protection of cloud data. Many sensitive information is stored in the cloud, and it must be kept safe from unauthorized access. By hiding the sensitive information's, privacy for an individual or organization is provided. The data in the cloud are secured by hiding the sensitive information. In the proposed system when the user and data analyzer sign-in they will receive the verification mail to assure as a valid user or data analyzer. The verification key for the user and the data analyzer is generated by the Private Key Generator

PAPER • OPEN ACCESS

Machine Learning based Fraud Analysis and Detection System

N Kousika[1], G Vishali[1], S Sunandhana[1] and M Arvind Vijay[1]

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https://doi.org/10.1088/1742-6596/1916/1/012115

Abstract

The spectacular surge in the proportion of credit card transactions, web based purchases, has led to a surge in fraudulent activities recently. For any business establishment, credit card security is a major concern. In this respect, credit card fraud is hard to identify. Thus it became imperative to implement effectual fraud detection systems for all credit card issuing banks to mitigate their losses. Betrayed transactions with real transactions in actuality are often dispersed and simple methods of matching are

A System for Fake News Detection by using Supervised Learning Model for Social Media Contents

Publisher: IEEE

N. Kousika ; Deepa. S ; Deephika. C ; Dhatchaiyine. B M ; Amrutha. J All Authors

Abstract: The evolution of ICTs has dramatically increased the number of people with internet access, which has altered the way the information is consumed. As a result, fake news ... **View more**

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Abstract:
The evolution of ICTs has dramatically increased the number of people with internet access, which has altered the way the information is consumed. As a result, fake news has become one of the main concerns because it could destabilize governments and put them at risk for contemporary society. This can be seen in the example, consider the United States. Electoral campaign, where the term "fake news" became famous as a result of the hoaxes impact on the final outcome. This research work studies the possibility of using deep learning techniques to discriminate against counterfeit news on the Internet using only

Detection of Telephony Spam and Scams using Recurrent Neural Network (RNN) Algorithm

Publisher: IEEE

S. Mohana Gowri ; G Sharang Ramana ; M Sree Ranjani ; T Tharani All Authors

Abstract: Malicious phone calls, including spam and scams, caused millions of global financial losses every year and was a difficult problem over many years. This work introduces t... **View more**

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Abstract:
Malicious phone calls, including spam and scams, caused millions of global financial losses every year and was a difficult problem over many years. This work introduces the solution based on machine learning for telecommunications without underlying the telephone network infrastructure. The major obstacle of this ten years old problem is building efficient functions without access to the telephony network infrastructures. The previous Spam Call data set is collected first. The dataset includes several labelbased features to predict malicious calling. We primarily focus on using Recurrent Neural Network (RNN) algorithm

A Survey on Evolution of Cloud Technology and Virtualization

Publisher: IEEE

K M Majidha Fathima ; N. Santhiyakumari All Authors

Abstract: The term cloud is termed as a collection of resources both physical and virtual. The customers across the globe are accessing the services of the cloud. The key elements ... **View more**

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Abstract:
The term cloud is termed as a collection of resources both physical and virtual. The customers across the globe are accessing the services of the cloud. The key elements of the data center formed by the cloud are compute, network, storage, application and DBMS (Database Management System). The services provided by a real machine are imitated by the virtual machines. The services offered are for resources like CPU (Central Processing Unit), NIC (Network Interface Card), memory and hard disk. NIC is used to connect the system to the network. The virtual machines are created by software's like hypervisor. The

A Survey On Network Packet Inspection And ARP Poisoning Using Wireshark And Ettercap

Publisher: IEEE

K M Majidha Fathima ; N. Santhiyakumari All Authors

Abstract:A network consists of a collection of nodes such as hubs, bridges, switches, routers, firewalls, brouters, packet shapers. The hubs help in connecting two devices. The br... **View more**

Metadata

Abstract:
A network consists of a collection of nodes such as hubs, bridges, switches, routers, firewalls, brouters, packet shapers. The hubs help in connecting two devices. The bridges and switches function in layer 2 of ISO-OSI (Open Systems Interconnection). Routers perform the role of delivering packets from source to destination. Firewalls protect the networks by filtering the traffic between sender and receiver. The packet shapers help in regulating the traffic by cutting out spikes in a connectivity. The network is being utilized as 24*7 days support. The network is being exposed to various kinds of attacks such as

MEMS Multisensor Intelligent Damage Detection for Wind Turbines

Publisher: IEEE

Maziar Moradi ; Siva Sivoththaman All Authors

Abstract: Maintenance and repair of wind turbine structures have become more challenging and at the same time essential as they evolve into larger dimensions or located in places w... **View more**

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Abstract:

Maintenance and repair of wind turbine structures have become more challenging and at the same time essential as they evolve into larger dimensions or located in places with limited access. Even small structural damages may invoke catastrophic detriment to the integrity of the system. So, cost-effective, predictive, and reliable structural health monitoring (SHM) system has been always desirable for wind turbines. A real-time nondestructive SHM technique based on multisensor data fusion is proposed in this paper. The objective is to critically analyze and evaluate the feasibility of the proposed

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Hyperspectral Image Classification Using Ensemble Transfer Learning

K R Senthil Murugan[1], G Kishore[1], S Mohammed Inam[1] and K Karthikeyan[1]

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https://doi.org/10.1088/1742-6596/1916/1/012082

Abstract

Today there is colossal advancement in virtual age that has achieved the improvement of various technology without trouble using contraptions and procedures specifically with in the side the fields of interchanges and measurements change to an allencompassing distance. The transmission of insights

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Real-Time Social Distance maintaining using Image Processing and Deep Learning

K R Senthil Murugan[1], G Kavinraj[1], K Mohanaprasanth[1] and Krishnan B Ragul[1]

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Agro Chain - The Life of Wealth in Agriculture

Publisher: IEEE

M. Kavitha ; M Suba Ranjani ; Ra Theepavishal ; A Vishal All Authors

Abstract: To develop a application software for automating the agricultural land documents of the farmers along with their sustainable needs. At present agricultural documents are ... **View more**

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Abstract:

To develop a application software for automating the agricultural land documents of the farmers along with their sustainable needs. At present agricultural documents are maintained by the government physically which makes it difficult to access and get back the data efficiently. SHA-256-based approach for creating a Cryptocurrency system for storing largest crop documents (field chart, income reports, encumbrance certificate) in a bitcoin blockchain (Secured hashing algorithm). The administrator account can update the records on a daily basis as well as the user will view the property records in the blockchain network via their private key. Because the blockchain network

PAPER • OPEN ACCESS

Distributed Ensemble based Deep Learning architecture for Intrusion Detection against Cyber attacks

M Kavitha[1], K Elamukhil[2], R Ajeeth[2], R Ashwin[2] and V Balasubramaniam[2]

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Abstract

The increasing scale and importance of web contact around the Internet has increased the need for improved cyber security defence against cyber attacks. On modelling the machine learning based intrusion detection system, features of the attacks helps to discover, determine and identify unauthorized behaviour. Behaviour modelling has been used as training model to detect the evolving attacks to the servers or learning model has been constructed to build a training model to identify the

Certificate

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This Certificate is presented to

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for the research paper titled **"Cognitive radio aware transport protocolanddata analyticsin 5G"** in the International Conference on Computing, Communication, Electrical and Biomedical Systems (ICCCEBS 2021) held at **KPR Institute of Engineering and Technology, Coimbatore, Tamilnadu, India.**

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PAPER • OPEN ACCESS

Secured Cloud Based Health Care Framework with Blockchain

R Gowthamani[1], Rani K Sasi Kala[1], G Renugadevi[1], Kannah K Prithvi[1] and Prakash D Suriya[1]

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Abstract

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This is to certify that Mr./ Ms./ Dr. **N. Karthikeyan, AP/ CSE**

of **Sri Krishna College of Engineering and Technology, Coimbatore** has participated and presented a paper entitled **ARG GAME THERAPY FOR AUTISM DISORDER**

in the TNSCST Sponsored 7th International E - Conference on Latest Trends in Science,Engineering and Technology (ICLTSET'21) organized by Karpagam Institute of Technology, Coimbatore held on 26th & 27th of March 2021.

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International Conference on Computing, Communication, Electrical and Biomedical Systems

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Computer Science Department,

Sri Krishna College of Engineering and Technology, Coimbatore, India.

for the research paper titled **"Machine Learning Based Classification Models for Heart Disease Prediction"** in the International Conference on Computing, Communication, Electrical and Biomedical Systems (ICCCEBS 2021) held at **KPR Institute of Engineering and Technology, Coimbatore, Tamilnadu, India.**

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Predicting heart disease using hybrid machine learning model

G Renugadevi[1], G Asha Priya[1], B Dhivyaa Sankari[1] and R Gowthamani[1]

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Abstract

Comparative analysis of CNN and Viola-Jones for face mask detection

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Abstract. According to the World Health Organization, the Coronavirus (COVID-19) pandemic is causing a worldwide emergency, and one safe way to cover oneself is to wear masks. This pandemic constrained governments everywhere in the world to force lock-downs to avoid the transmission of infection. Reports show that wearing masks at work diminishes the danger of infection. We assemble our model by utilizing the concept of deep neural learning and AI. The dataset comprises pictures with masked faces and non-masked faces. Several computer algorithms are there for face detection. But this analysis centers around two of the most widely recognized procedures: The Viola-Jones algorithm and the Convolution Neural Networks. We will check whether the individual in the image/video wears a mask or not with a CV and Deep neural learning. Not only finding out about face mask detection, but this project also introduced the chance to delve into the field of computer algorithms.

Keywords: Haar-like features, Keras, Tensorflow, Computer Vision, Mask Detection.

1. Introduction

The fast emits of COVID-19 in 2020 urged the World Health Organization to proclaim it a worldwide pandemic. The infection spreads through direct contact and in closely-packed regions. Artificial Intelligence aids us in the battle of Covid-19 from numerous points of view. The habit of wearing a face mask is expanding anywhere. Researchers have claimed that to forestall the transmission of COVID-19, we should put on masks. Several nations imposed rules to encourage their residents to put on the mask. These law-related rules and regulations have been proposed to counter the quick raise in cases and mortality in several nations. The technique for the observation of enormous groups of individuals is hard. Our lives are made simpler by using advancements in technology such as ML and AI to solve many basic issues. For simple human perception, a few procedures are executed with a CV algorithm. From image characterization to video investigation, CV has been demonstrated to be a developmental part of current innovation. With the guide of innovation, 'Work From Home' has subbed our everyday work schedules. Here we show a masked face identification that depends on Computer Vision and deep learning. This is joined with cameras to block the virus transmission by distinguishing individuals who are not wearing a face mask. We utilized two distinct algorithms: The [1]Viola-Jones and [2]Convolutional Neural Networks. A comparison was made between them to decide which algorithm achieved better accuracy with less computational time.

2. Related works

To
M. Sivakumar
Computer Science
Sri Krishna College Of Engineering and Technology
Coimbatore

Article Reference ID: ICAMSMT-2021-04

Dear Sir,

Greetings and best wishes from Arunai International Research J
that it has been accepted for the Presentation at the "**Internat**

27 th to 28 th March 2021 at online". (Zoom)
Follow this link to join my WhatsApp group: https://chat.wh
I look forward to meeting you at the conference.
With regards,

Dr .Kasi Kamalakkannan
Organising Secretary
(ICAMSMT-2021)
Mobile: 9443814158

A Comparative Approach To Predict Corona Virus Using Machine Learning

Publisher: IEEE

M Rohini ; K.R Naveena ; G Jothipriya ; S Kameshwaran ; M Jagadeeswari All Authors

Abstract

Document Sections

I. Introduction

II. Related Works

III. Model Implementation and Methods

IV. Performance Evaluation Metrics

V. Experimental Setup and Prediction Model

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Abstract: Coronavirus disease (COVID-19), is one of the most infectious diseases which reshaped our everyday lives globally in the 21 st century. Technology progressions have a ra... **View more**

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Abstract:

Coronavirus disease (COVID-19), is one of the most infectious diseases which reshaped our everyday lives globally in the 21 st century. Technology progressions have a rapid effect on every field of life, be it the medical domain or any other. More than 250 countries have been affected by COVID in no matter of time. The Indian government is making the necessary steps to control the spread of virus in the society. People all over the world are vulnerable to its consequences in the future. In a pandemic like this, people often worry whether they show a symptom of COVID-19 or not. Various AI methods have been

Assistant for the guest with visually impaired using Deep Learning

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Abstract. The lack of Braille resources in this advanced world has tied the hands of visually impaired people from soaring up. This paper takes those guests into concern and presents a solution that helps every individual especially the blinds in reading books and text from real time images. This solution converts the text obtained from text document and real world entities to aural output which lends a hand in reading text. The main idea is to build a software using a novel methodology where OCR engine receives input images and get converted into intermediate textual output that is given to Google Trans to get the audio output via earphones.

Keywords: Image, Optical Character Recognition (OCR), Tesseract, OpenCV East Detector, LSTM

1. Introduction

The major impediment in the life of Visually impaired is to acquire resources that are compatible for them to read. When they visit public places like shops, restaurants, hospitals they have the need to depend on others. Hence this acts as a stumbling block in their lives. In order to overcome these drawbacks, many evolved to make their lives manageable using various technologies and methodologies. Initially many implementations were discovered which were based on technologies that generate the required text into its Braille equivalent. Tsukuda et al came up with a solution called Braille printer which in turn provide Braille characters for the given input text. It faced certain sort of troublesomeness like time frame, cost, unmanageability in the case of larger texts etc. And thus in this case, this was not able to expect to produce an instantaneous solution and failed to give analogous output for all inputs. Eventually this leads to the rise of other forms of technologies from the feedbacks received.

After Braille auditory design of resources were created and attempted in reading. Books in the form of Cassettes and tapes broke down from continuation spot for the readers when they start reading. It has to be followed in an order and one cannot get or divert back to the continuation spot of the text. It was difficult to hear the text iteratively. DAISY, Digital Accessible Information System is designed to be a complete substitute for audio of print materials and was designed specifically for use by people with blindness, dyslexia and impaired vision. Thus this was able to give a lively reading experience.

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Real Time Face Mask Identification Using Deep Learning

M Sujaritha[1], S Kabilan[1], M Manikandan[1] and S Nanda Kisore[1]

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Abstract

Corona virus disease (COVID-19), one of the most life-threatening diseases which is highly harmful to the people in all over the world. The government of all countries in the world are in the situation to make effective steps to prevent the spread of COVID-19 in the society. If this situation continuous

Privacy Preserving Verification Scheme for Cloud Platform Using DML

Sujaritha[1], Akshara D[1], Ashfak Ahamed A [1], Chandhini shri V S [1]
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Abstract. Deduplication technology is familiar in cloud-based services. It is used to reduce the space and the bandwidth requirements as a result, it reduces the redundancy and stores only the original copy. Deduplication finds its usage when a group of users stores the same data to the cloud storage service, but by using this method there is an issue regarding the ownership and security, and before getting into this process many users first encrypt their data and then share it with the cloud storage so that there is minimum or no privacy issue found. Recently so many models were released to solve this problem. That was actually done by sharing the same encrypted data for the same data which is shared by each owner. But by following this described method many flaws were found. We present a novel server-side deduplication model for all encrypted data in this paper. By following this model there is a proper control over the delegated data even after the control changes from person to person. So, Random convergent encryption and stable ownership key distribution are used. Through this method, the data theft can be prevented not only to the reward user but also to the old user who previously owned that data.

Keywords: Cloud, Privacy, DML, Networks.

1. Introduction

The term cloud computing is a recently and most used term in the IT Industry. Cloud computing is the true future of the information technology industry. The term called as cloud computing is new but the ideology behind that is found way back before 1990 [1]. In the utility computing paradigm, cloud computing seeks to bring more features, availability, stability, and scalability to cloud users. Cloud computing provides us with the ability to access applications over the Internet. It enables us to create, configure, and modify applications online [2].

The word cloud refers to a network or the Internet. Cloud computing refers to the ability to manipulate, configure and access applications via Internet [3]. It gives online data collection, connectivity and application. Cloud provides services over network, such as on public networks or private networks [4].

1.1 Deployment Models:

Deployment models define the type of cloud access that can be of 4 type of access: public, private, hybrid community [5]. The online cloud makes it possible for the general public to connect systems and resources [6]. Due to its transparency, the public cloud, such as e-mail, can be less reliable. Systems and software will connect to the enterprise via the private cloud. Because of its private nature, it offers greater security. A group of organizations can use Community Cloud to access systems and services [7].

1.2 Hybrid Cloud

A mix of public and private cloud. However, important operations are carried out on private cloud and non-essential activities are carried out on a public cloud Figure 1.

Indicator for The Water Level Using Bluetooth

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Abstract. The significance of water rationing has increased over the past few decades. It is hard to estimate level of water in tanks manually. When the water tank is full, the client may not realise the condition that the motor is turned ON which leads to water wastage. To tackle the issues related with the water tank, the water level pointer and regulator framework are utilized. The water level can likewise be tried utilizing a sensor, so the siphon consequently turns ON if the water goes down. The proposed system can even notify clients about the damages in the tank.

1. Introduction

In everyday life, water is a widespread dissolvable that assumes a significant part. It has been assessed that the complete volume of water accessible on earth is 1.4 billion cubic kilometers. This volume of water may be enough to cover the earth in a 3-kilometer layer. [1] Only one percentage of pure water is available for domestic use. A study assesses that an individual devours a normal of 135 liters each day in India. Continuously 2025, such utilization will increment by 40%. This infers the requirement for our new water supply to be kept up. Proficient administration of the water utilized at homes is a lot of fundamental as, about half of water provided to the urban areas gets squandered through its ill-advised utilization. The control of water is just conceivable if the client knows about the amount of water he utilizes and the amount available to him. In the entire lives, water is major. There is scarcely any individual who monitors the water level in the overhead tanks. [2] By automating the control of this design, may work with basic human mind or no human intervention. The definition can be utilized in a roundabout way to survey and screen the water level in overhead tanks and evade squander. Indicator of water level using Bluetooth is determined by ultrasonic sensors utilizing the Arduino project. At first, the tank is considered vacant. [3] At the point when the water level turns out to be low, the engine siphon is consequently turned ON and killed when the tank is full.

2. Objectives

To achieve this mission, there are a few focuses on that should be cultivated. Such targets will fill in as a kind of perspective and will restrict the framework for specific circumstances to be actualized:

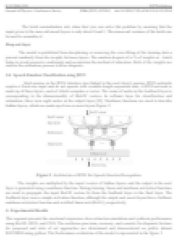
1) To assemble a framework for water level control.
2) The color sensor checks for the purity of the water and ensures the contaminated level.
3) To keep an eye on the tank's water level. When the storage chamber level is low,motor stops.

3. Literature survey

1

2

3



4

Electromyography in Machine Learning

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Abstract. This project is based on the utilization of AI and conclusion of electromyographic data. The information cleaning has been led dependent on the particular planned incorporation standard. Two informational collections have been organized which contains 575 facial engine nerve conduction and 233 hearable brain stem reaction reports. And afterward, four AI calculations including irregular timberland, direct relapse, uphold vector machine and strategic relapse have been appropriated to the informational collections. The exhibition correlations of precision and review rate among various calculations demonstrate that the irregular backwoods calculation has the ideal presentation over the other two collections. The correlation has been done for every calculation and the deviation normalization certainly affects the exactness outcome. Subsequently, the irregular wood is demonstrated to be an ideal calculation for PC supported finding frameworks. Besides, it merits referencing that the com- ponent selection arranged by significance can encourage clinical interpretation in analysis and symptomatic appraisal.

Keywords: Machine Learning, Electromyography, Feature Extraction, Random Forest Model, Support Vector Machine, Linear Regression Model.

1. Introduction

Nerves, Muscle cells, nerve electrophysiological (EMA) were used to find out the bioelectrical issues in the science field for almost a century. Electrophysiology is the department of physiology, its analysis about the electrical characteristics of biological organic cells and membranes [1]. The specialist in neuronal electrophysiology can find the brain activity and they can know how the neuronal disorder happens. Across the past several years, various efforts are committed to machine learning utilization in this diagnosing experiment.

During 2016, each Gulshan partner of this University of American state incontestible within the JAMA magazine that AI may diagnose diabetic retinopathy- thy from over one hundred, retinal bodily structure pictures. In light of the nerve electrophysiology, an exhaustive clinical electrophysiological assessment innovation has been created for quite a long time, including electroencephalography, electromyography, and evoked possibilities.

This assessment innovation owns clinical significant analysis of neurogenic and myogenic illnesses, as well as in the subjec tive confinement, obsessive degree, and anticipation of fringe neuropathy. As a crucial piece of man-made consciousness, AI calculations, for example, customary AI calculations, profound learning calculations, and support learning calculations, have been widely utilized in the clinical field and assumed an imperative part in the finding and treatment of illnesses.

Semantic Approach To Live Data Mining Using Clustering Technique

Publisher: IEEE

B Sophia ; R Rajaraman ; S Mathan ; G Ravi Shankar All Authors

Abstract: In recent times, Social Networks became ubiquitous in our daily life. These networks can be used to obtain high-volume data related to any given event or topic. Twitter, ... **View more**

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Abstract:
In recent times, Social Networks became ubiquitous in our daily life. These networks can be used to obtain high-volume data related to any given event or topic. Twitter, one of the famous networks, became the wealthy supply of discussed topics. The users on Twitter express their point of views or opinions by tweets concerning different topics in a variety of fields. The data generated on Twitter can be extracted via Sentiment Analysis. In this proposed system, an artificial intelligence concept (NLP) is applied that understands the sentiment of extracted data and polarizes them into positive, negative, or neutral. These

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A Secure Remote Clinical Sensor Network Approach for Privacy Enhancement

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https://doi.org/10.1088/1742-6596/1916/1/012107

Abstract

Health being the biggest concern of the patients all around the globe, e-healthcare Remote Clinical Sensor Network assists in gathering the crucial body information of individual boundaries using sensors. There are chances forlots of issues like absence of vigor, diminished framework's adequacy,

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An Automated Machine Learning Approach for Stroke Prediction

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https://doi.org/10.1088/1742-6596/1916/1/012085

Abstract

A Machine learning-based approach for developing an app capable of recognizing and disseminating healthcare data. Among the world, the major cause of disability is stroke. Brain ischemia subgroup was crucial not only for effective mediation and care, but also for the visualization of injury. An integrated form was used to organize the subcategories of brain ischemia on the global clot trail data in this study. Initially, the Shapiro-Wilk calculation was used to determine the importance of highlights, as well as

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A Safety Measuring Tool to Maintain Social Distancing On COVID-19 Using Deep Learning Approach

N Pooranam[1], Priya P N Sushma[1], S Sruthi[1] and Dhanya K Sri[1]

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https://doi.org/10.1088/1742-6596/1916/1/012122

Abstract

Due to this recent wave of the Deadly corona virus disease, which has spread widely all over the world, so physical or Social distancing has become a mandatory precaution to avoid close contact. As of January 2021, the count of affected cases is 10.8 million and recovered cases are 10.5 million and the death rate is 155 thousand. In conformity, we have proposed a system that elucidates the usage of Python, computer vision, and deep learning to monitor whether people are maintaining Social distance

Intelligent Transaction System for Fraud Detection using Deep Learning Networks

J Fenila Naomi[1], Roshan Jeniel R[1], Sakthi Eswaran K[1], Sanjeev Kumaar N M[1]

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Abstract. Detecting online transaction fraud is a basic study of the new era of electronic transactions. Because the payment patterns of customers and the fraud behaviour of offenders are continually changing, improving the consistency of the fraud detection model and ensuring its stability is exceedingly challenging. In this report, we will look at We concentrate on acquiring deep feature representations of legal and fraud transactions from the perspective of a deep neural network's loss function in this report. Our aim is to increase the separability and discrimination of features in order to boost the efficiency and stability of our fraud detection platform, with the rapid evolution of the technology, the world is turning to use online transaction instead of cash in their daily life, which opens the door to many new ways for fraudsters to use these cards in a nefarious manner. Global losses are projected to reach $35 billion by 2020, according to the Nilson report. To guarantee that users of these credit cards are secure, the credit card issuer should provide a program that protects them from any threats they can experience. As a result, we illustrate our framework for predicting whether transactions are genuine or illegitimate using Kaggel's IEEE-CIS Fraud Detection dataset. BiLSTM-MaxPooling-BiGRUM is the name of our model. Long bi-directional gated repeated unit and long bi-directional memory term (BiLSTM) are used in axPooling (BiGRU).

Keywords: Online transaction, fraud detection, credit cards, Long bi-directional gated repeated unit and long bi-directional memory (BiLSTM)

1. Introduction

For a long time, online transaction fraudsters and detectors play a complex role. Transaction fraud happens more often than ever before, particularly in today's Internet era, and it causes major financial losses [1]. The Nilson study included an in-depth examination of the global situation around online transaction fraud. Online transaction fraud cost the economy around $21 billion in 2015, around $24 billion in 2016, and more than $27 billion in the year 2017. The rate of global online transaction fraud is expected to rise year after year, reaching $31.67 billion in 2020. As a result, banks and financial service providers may require an automatic online fraud detection mechanism to identify and monitor online transactions. Fraud identification systems are designed to distinguish unusual activity patterns from a vast number of transactional records and then use those patterns to identify or track incoming transactions [2]. Machine learning has shown to be very fruitful at extracting these patterns. To put it another way, a large number of transaction reports may be used to train a high-performing fraud classifier. Despite the fact that supervised learning has been extremely successful in detecting fraudulent transactions, the advancement of transactional fraud analysis technologies will never stop. Small enhancements too will save business a significant amount of money.

An Efficient Approach Towards Surrogate Node Selection For Container Migration In Fog Computing

Publisher: IEEE

V.R. Azhaguramyaa ; J. Janet ; V. Tharuneshwar ; S. SriRam ; T. Siva Kumar All Authors

Abstract: With the trending and growing field, the cloud and the Internet of Things (IoT) an interconnection of physical devices and the on demand availability of computer resource... **View more**

Metadata

Abstract:

With the trending and growing field, the cloud and the Internet of Things (IoT) an interconnection of physical devices and the on demand availability of computer resources especially data storage, there arises a need for efficient way to process, analyze and compute the data from the end devices which can be done through fog computing. With increasing needs for more efficient and effective data processing in fog nodes, in terms of efficiency this project aims at reducing the latency of data transfer and processing using fog nodes containerized with Docker and in terms of effectiveness while dealing with

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An Intelligent System for Waste Materials Segregation Using IoT and Deep Learning

V R Azhaguramyaa[1], J Janet[1], Vijay Varshini Lakshmi Narayanan[1], R S Sabari[1] and Kumar K Santhosh[1]

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Abstract

Disposing of Garbage is still a hurdle in today's world and not many waste materials are disposed of correctly as per the requisite procedure. They are rather dumped in landfills and other sources like water bodies causing Pollution. The proposed system amalgamates the Internet of Things with Deep Learning and Image Processing which replaces the conventional waste management system with a smart segregation process. The proposed model consists of a Raspberry Pi camera to scan and detect

PAPER • OPEN ACCESS

Skin Cancer Classification Detection using CNN and SVM

A Pushpalatha[1], P Dharani[1], R Dharini[1] and J Gowsalya[1]

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A CBRD Technique for Energy Efficient Bandwidth Image Sharing

Publisher: IEEE

P.Kavitha Rani ; K.S. Madhuaravindh ; S. Praneet ; M. Jagadeep All Authors

Abstract: Conventional methods for picture recovery are not upheld for the consistently far reaching picture information base. These drawbacks can be eliminated by using substance ... **View more**

Metadata

Abstract:

Conventional methods for picture recovery are not upheld for the consistently far reaching picture information base. These drawbacks can be eliminated by using substance of the picture for picture retrieval. Such a picture recovery is called as Cross Batch Redundancy Detection (CBRD). Honey bees is works with CBRD is engaged around the visual highlights like shape, shading and surface. The Density-Bandwidth Energy Efficient Sharing(BEES) is a stand apart among the most locally highlight indicator and descriptors which is used as a piece of most of the vision programming. We center texture, color, shape, size, string based picture coordinating with better precision. These highlights incorporate Texture, Color, Shape and Region. It is a hot exploration zone and specialists have created numerous methods to utilize these element for precise recovery of

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A Novel Session Password Security Technique using Textual Color and Images

P Kavitha Rani[1], R Sai Krishna[1], U S Siddarth[1] and E Vidya Sagar[1]

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Journal of Physics: Conference Series, Volume 1916, 2021 International Conference on Computing, Communication, Electrical and Biomedical Systems (ICCCEBS) 2021 25-26 March 2021, Coimbatore, India

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Diabetes Mellitus Prediction System Using Hybrid KPCA-GA-SVM Feature Selection Techniques

M G Dinesh[1] and D Prabha[2]

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Journal of Physics: Conference Series, Volume 1767, International E- Conference on Data Analytics, Intelligent Systems and Information Security & ICDIIS 2020 11-12 December 2020, Pollachi, India

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Abstract

Diabetes mellitus is a serious health issue in healthcare industry, which is a type of uncontrolled level of sugar. It is a chronic disease happened to the person who are having low insulin production and increase level of blood glucose because glucose is not properly utilized by body. In the medical field, predicting the correct diabetes is an important area that is under research to define a good predictive system to help the doctors to diagnose the disease. In the predictive system, feature selection plays on vital role to select the relevant feature for classification. There are several algorithms were applied on classification of diabetes data. In this proposed work, the features are transformed into high dimensional space before selection. So that the transformation of the features will give the better

PAPER • OPEN ACCESS

Alleviating NB conditional independence using Multi-stage variable selection(MSVS): Banking customer dataset application

R Siva Subramanian[1], D Prabha[2], J Aswini[3], B Maheswari[4] and M Anita[4]

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Abstract

Biomedical Engineering Tools for Management for Patients with COVID-19
2021, Pages 121-133

Chapter 7 - Smart equipment to protect patients and people from COVID disease

R. Lakshmana Kumar [1], N. Pooranam [2], T. Vignesh [2]

https://doi.org/10.1016/B978-0-12-824473-9.00006-9

Abstract

An intelligent system is designed in this proposal to handle this crucial situation in a better way. The algorithm is developed in such a way that medical equipment are disposed of in hospitals as normal. If the hospital has a COVID-19 block the used equipment should be disposed of in a closed lid so that the spread of viruses can be reduced. The main motive of this proposal is to reduce the human resources, improve waste disposal, and make the waste reusable. In a hospital environment there is different color code that decides which equipment should be disposed of. The doctors and the nurse are the people who decide what color code is to be used for the disposal of medical equipment. The different color-coded waste bin is chosen for making reusable waste into a fertilizer for agricultural fields. To do this process the system is designed in an efficient method and cost reduction is maintained until the end of the process. Before entering the recycling process all the waste should be sanitized. After the verification process is done on the waste materials the recycling process gets started on the basis of the color code of the waste collection. A smart bin will be designed for each color code based on the usage of the medical equipment; the segregation process will be carried out in each phase. In the final phase after the recycling process it will be used as fertilizer and will be distributed to the farmers to improve crop yield. An algorithm is going to work on data verification and checking process, which will be done automatically. After the data automation process a intimation will be sent to the final testing process where it helps us to do segregation process in an efficient way.

Keywords

COVID 19; color code; smart bin

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Chapter

A Study on Privacy-Preserving Models Using Blockchain Technology for IoT

By Syed Muzamil Basha, J. Janet, S. Balakrishnan

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ABSTRACT

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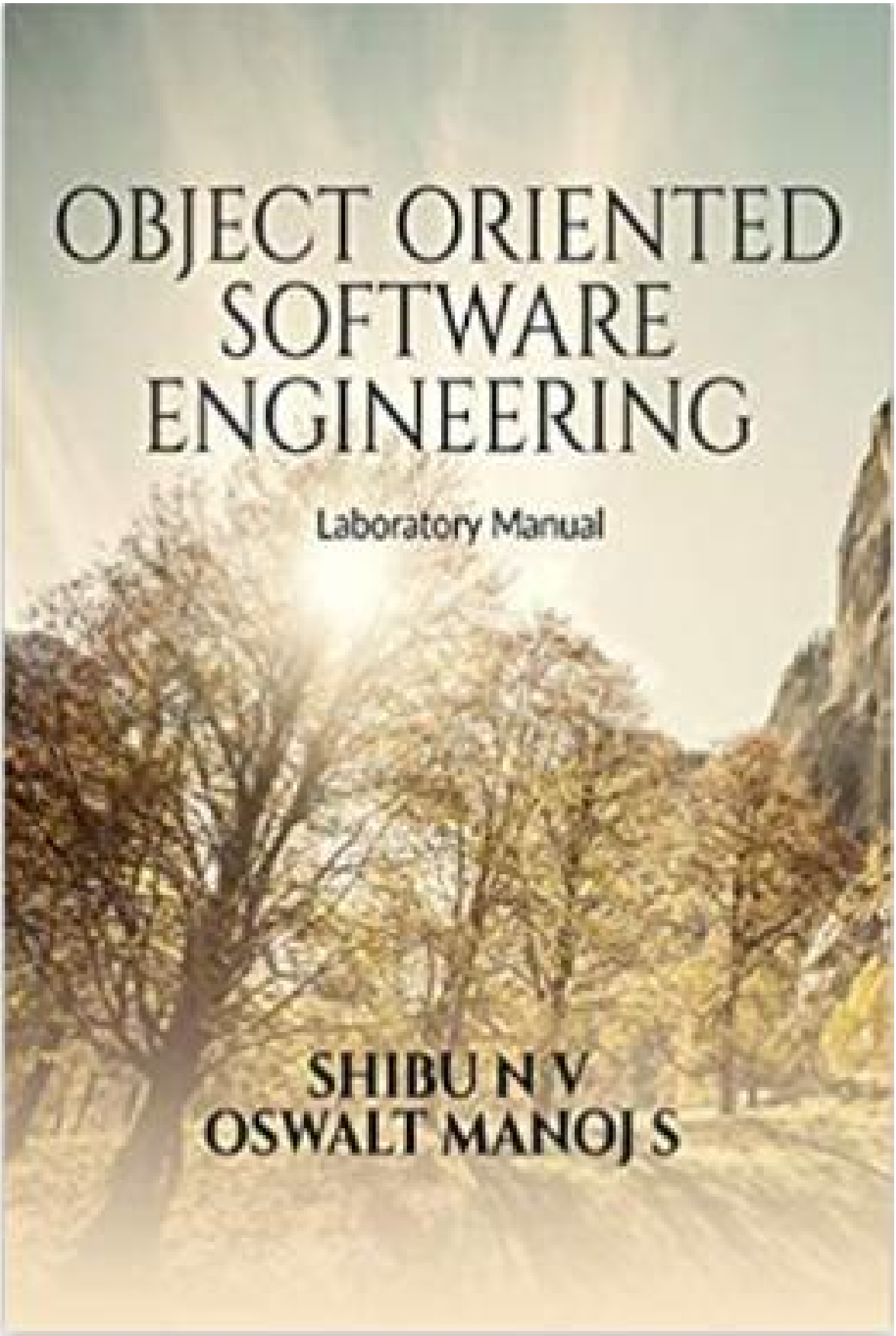

SHIBU N V
OSWALT MANOJ S

A High Security Framework Through Human Brain Using Algo Mixture Model Deep Learning Algorithm

S. Balakrishnan, J. P. Ananth, L. Ramanathan, R. Sachinkanithkar, and S. Rajkumar

Abstract Brain reading is an art of reading human brain where the bioengineers are the picasso in it. Brain wave is also a form of energy which is not used by humans for external purposes other than thinking. The current functional magnetic resonance imaging (FMRI) technology plays a vital role in the detection and estimation of brain patterns. The idea in this chapter is to analyse the uniqueness of human brain patterns and providing high level security based on various factors such as size, state of mind, and rate of waves. This framework eliminates the rate of fraud tolerance which is quite common in other security recognition systems. This chapter propose an algorithm called algo mixture model in deep learning for the implementation of providing security via human brain.

1 Introduction

One of the most reputable buzzword in the field of technology and innovations is artificial intelligence [1] which can be also said as machine intelligence (MI). The artificial intelligence laid the strong platform for the development of other technologies such as machine learning (ML) and deep learning (DL). Machine intelligence is recognised as a study that deals with various agents entirely based on intelligence

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A Case Study on Data Vulnerabilities in Software Development Lifecycle Model

Syed Muzamil Basha (Sri Krishna College of Engineering and Technology, India), Ravi Kumar Poluru (Vellore Institute of Technology, India), J. Janet (Sri Krishna College of Engineering and Technology, India), S. Balakrishnan (Sri Krishna College of Engineering and Technology, India), D. Dharunya Santhosh (Sri Krishna College of Engineering and Technology, India) and A. Kousalya (Sri Krishna College of Engineering and Technology, India)

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DOI: 10.4018/978-1-7998-2367-4.ch002

Abstract

Software security has become a very critical part of our lives. A software developer who has a fundamental understanding of software security can have an advantage in the workplace. In the massive Equifax breach that occurred in 2017 that exposed data of roughly 140 million people, attackers exploited a vulnerability in Apache Struts, CVE-2017-5638, which allows remote attackers to execute arbitrary commands when specially crafting user-controlled data in HTTP headers. Sensitive data exposure issues are essential to know to protect customer data. It is fascinating to understand how attackers can exploit application vulnerabilities to perform malicious activities. The authors also want the reader to be aware of the fact that we should always be thinking about how our applications handle user-controlled data so that we can put guards in place to minimize security issues in the development of new applications.

Chapter Preview

Top

Introduction

Conceptualization of Computer Networks

Dr.G. Ignisha Rajathi
S. Nagajothi
Dr.P. Balamurugan
Dr.R. Johny Elton

Centivens Institute of Innovative Research

About the Author

Dr. G. Ignisha Rajathi received her degrees - Bachelor of Engineering and Master of Engineering as a rank holder, in the discipline of Computer Science and Engineering under Anna University, Chennai. She completed her Doctorate in the Faculty of Information and Communication Engineering under Anna University, Chennai. Having 13 years of teaching experience, she is presently working as Assistant Professor in the Department of Computer Science and Engineering at Sri Krishna College of Engineering and Technology, Coimbatore, India. She has marked her areas of interest as Medical imaging, Image processing, Soft Computing. She has published more than 15 research articles in Journals, including high-impact versions and in various Conferences. She has published books and patents. She has trained the police force in fundamentals of computers and has delivered many invited talks and guest lectures, also engaged in consultancy projects.

Ms. S. Nagajothi, Assistant Professor, Department of Computer Science and Engineering, Sri Krishna College of Engineering and Technology, Coimbatore. She has completed her Bachelor of Technology - Information Technology in the year 2014 and Master of Engineering - Computer Science and Engineering in the year 2016 as a Rank holder. I have 3 years of Teaching Experience. Her area of research is IoT, Machine Learning, Cloud computing and Wireless Networks. She has published around 06 papers in Scopus indexed journals, 02 book chapters and life member of ICSCS, IAENG and IEEE. She has also received Research Grant from ICMR and CSIR for Conducting Seminars and Workshops.

Dr. P. Balamurugan is Associate Professor, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Tamilnadu, India. He passed BE in Computer Science and Engineering from Madurai Kamaraj University in 2003 and ME in Computer Science and Engineering from Manonmaniam Sundaranar University in 2006. He completed his doctorate from Anna University in 2013. He obtained GATE score in 2003. He is recognized as a Supervisor for Ph.D Programme and M.Tech (By Research) in Information and Communication Engineering for Anna University and Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology. He is the member of IEEE, ACM, ISTE etc... He is trained certificate holder of 'High Impact Teaching Skills' through WIPRO MISSION 10X and Trained Evaluator of NBA and ABET. He is in the reviewer member of 6 International/National Journals. His research interest is mainly in Networks, Ad-hoc and Sensor Networks, and Data Structures. He has filed and published more than five patents. He has published books "Theory of Computation" and "Problem Solving and python Programming" and also a number of research papers in international journals and presented papers in international conferences. He has done a number of consultancies work at various organizations. He has delivered a many informative guest lectures at various organizations. He has also organized and conducted many workshops, conferences and seminars at his zone.

Dr. R. Johny Elton is a Research Fanatic with ardent passion in scientific exploration of detailed delineation on current technologies. He did his Bachelor of Engineering Degree in Noorul Islam College of Engineering, Thuckalay, Master of Engineering in Manonmaniam Sundaranar University and Doctoral degree from Anna University, Chennai. His research interests include Natural Language Processing, Computer Vision and has published research papers in peer-reviewed Journals. Currently, he is working for Indsoft Technologies, Tirunelveli, on various innovative research works.

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An Automated Security Approach of Image and Video Steganography

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Conference paper
First Online: 21 January 2021

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 690)

Abstract

The steganography utilizes the craft of covered up; its principle point is to pass unnoticed information in information. There are numerous kinds of information utilized in steganography, for example, message, image, and video. Encryption is the job of securing data by shuffling it into a provision that cannot be used effectively and is called as the figure content. This mysterious figure or message content should be used by people using an anonymous key and able to decode the note into basic form. To match mystery information or single point data to the targeted alternative to various applications we use steganography. In cryptography, normally the matter in the mysterious note is mixed whereas in steganography the mysterious note is installed from diffuse standard. The proposed framework encodes a book or image within a cover image. Videos and images are exceptionally regular decisions to hide information. It is significant for the powerful and effective installation procedure to choose the video outlines which contains proper picture view that can be used to store mystery information. The audiovisual-built steganography is used due to memory prerequisites along with huge scope. LSB inclusion system, for concealing data we change LSB of video document with the data bits. This paper will concentrate on concealing data in an explicit video envelope and in an explicit

Perspectives of Machine Learning and Deep Learning in Internet of Things and Cloud: Artificial Intelligence-Based Internet of Things System

Preethi Sambandam Raju (SRM Valliammai Engineering College, India), Revathi Arumugam Rajendran (SRM Valliammai Engineering College, India) and Murugan Mahalingam (SRM Valliammai Engineering College, India)

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Abstract

For centuries, the concept of a smart, autonomous learning machine has fascinated people. The machine learning philosophy is to automate the development of analytical models so that algorithms can learn continually with the assistance of accessible information. Machine learning (ML) and deep learning (DL) methods are implemented to further improve an application's intelligence and capacities as the quantity of the gathered information rises. Because IoT will be one of the main sources of information, data science will make a significant contribution to making IoT apps smarter. There is a rapid development of both technologies, cloud computing and the internet of things, considering the field of wireless communication. This chapter answers the questions: How can IoT intelligent information be applied to ML and DL algorithms? What is the taxonomy of IoT's ML and DL and profound learning algorithms? And what are real-world IoT data features that require data analytics?

Introduction

Artificial intelligence is a part of computer science that deals with empowering skills and knowledge to the inhuman things in the world. It mainly encompasses two noteworthy thrill terms, namely, machine learning and deep learning. A profound scrutiny of three

2021 | OriginalPaper | Chapter

Optimizıng Naive Bayes Probability Estimation in Customer Analysis Using Hybrid Variable Selection

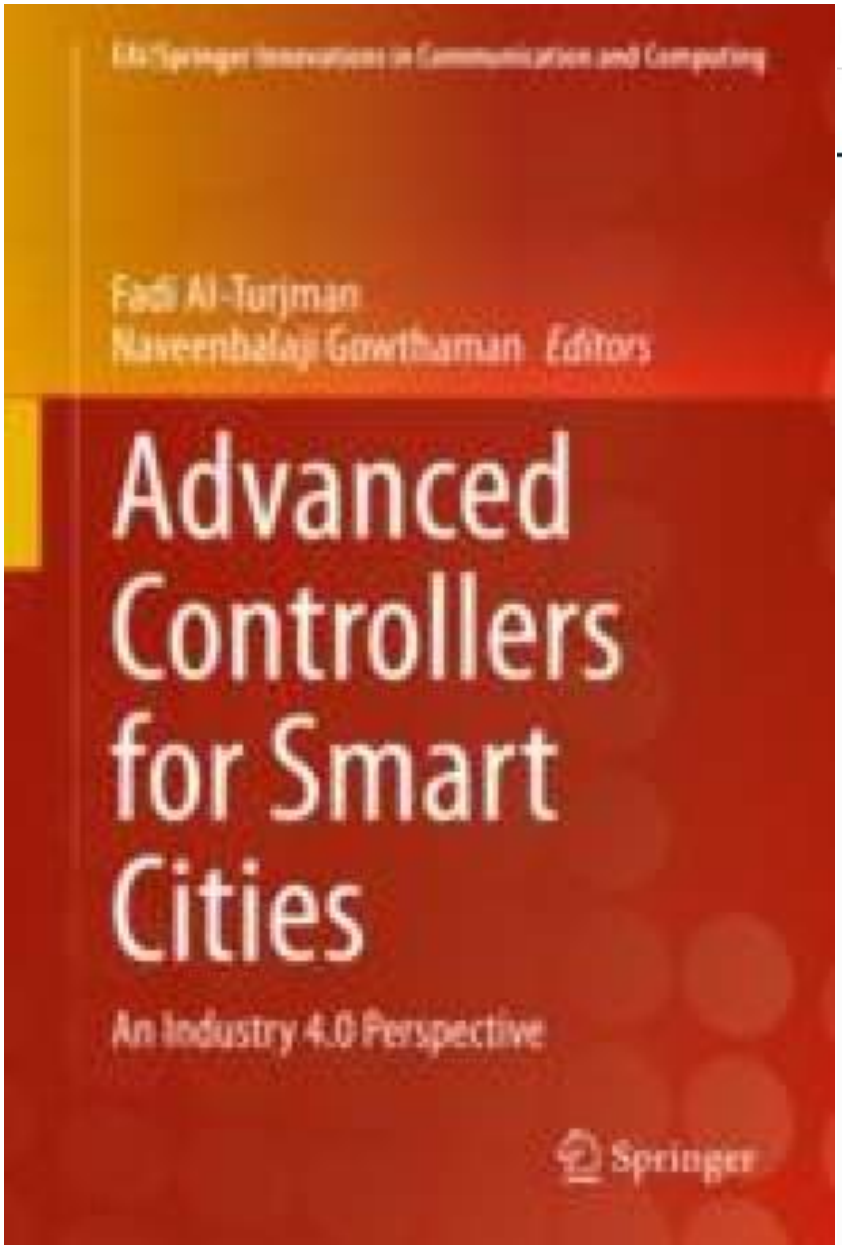
Authors: R. Siva Subramanian, D. Prabha

Publisher: Springer Singapore

Published in: Computer Networks and Inventive Communication Technologies

Abstract

Customer study is considered as an important business plan to improve the enterprise's goal. The purpose of customer analysis is to understand the potential customer within the enterprises and their organizational needs and how well the customers are pleased with the company service. To perform better customer analysis, the need for CRM is studied. But the customer data generated are in large dimensional which possibly holds correlated and uncertainties variables in the dataset. To perform better analyzes with these customer data, NB an ML model is applied. But the violation of NB assumption proposed toward variables causes NB to work shoddily. To improve customer analysis using the NB, the variable selection mechanism is proposed. The proposed hybrid mechanism is based upon the filter and the wrapper mechanism. The hybrid mechanism comprises of two phases—first using the ReliefF filter approach, the customer data are processed and ranked attribute subset is generated. Then using threshold value, best attribute set is obtained from the scored attribute subset. Then the preselected variable set is processed using SFS and genetic wrapper approaches individually to get the best optimal variable subset. Further, the variable set acquired using the proposed technique is analyzed with the NB model and performance is computed. The performance hybrid-NB is compared using the filter-NB, wrapper-NB and NB without using any variable selection mechanism. The results present proposed hybrid work better to get the best variable subset and also increase the performance of the NB classifier. Compare to the wrapper approach, the proposed hybrid approach exits less computational time.



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Advanced Controllers for Smart Cities pp 25-40 | Cite as

Impact and Prerequisite of Smart Cities

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R. Arun Sekar, S. Sasipriya

Chapter
First Online: 12 March 2021

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Abstract

Urbanization is a general phenomenon in which the movement of people from rural to urban takes place. In this context, we discuss the impact of urbanization in smart cities. Smart cities are the cities in which information and communication technology is utilized to enhance the quality of people's lives. There is a squeezing requirement for urban areas to become more astute so as to deal with large-scale urbanization and find better approaches to oversee intricacy, increase effectiveness, and improve the quality of life. A smart city is one that has advanced innovation inserted over all city capacities. These front line urban communities need to address issues of information management, including protection of innovation rights, taking care of legitimate information, and physical stockpiling and dispersion prerequisites. The strategy producers need to investigate new methodologies that will enable them to foresee the changes that the innovative progression brings. Smart city innovation appears to be a typical and important reaction to the increasing difficulties of urbanization, expecting their effect on complex urban framework. Besides, the impact of urban intercessions regularly goes past the

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Abstract

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Abstract

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Innovations in Information and Communication Technology

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Renewable Energy Based System Using IoT

Visvesvaran C, Siddharthraju K, Durgashree M, Janani J, Indhumathi G and Kaavya JS, Department of Electrical and Electronics Engineering, Sri Krishna College of Engineering and Technology, India

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Page :281-284

Abstract

Bridge safety monitoring system based on IOT this is a wireless technology. In this system we can install the monitoring devices in the bridge. This monitoring device helps to connect the communication devices to a cloud-based server. we use cloud-based server here because it helps to calculates and analyses the data which sent to monitor. Bridge monitoring system can monitor, analyse bridge conditions and their environment and also detect the nearby water levels, vibration and other safety features. Through the

21 | OriginalPaper | Chapter

Analysis of IoT-Enabled Intelligent Detection and Prevention System for Drunken and Juvenile Drive Classification

Authors: D. Ruth Anita Shirley, V. Kamatchi Sundari, T. Blesslin Sheeba, S. Sheeba Rani

Publisher: Springer International Publishing

Published in: Automotive Embedded Systems

Abstract

Drunken driving and juvenile driving are the root causes of accidents on the road. The aim of this book chapter is to put an end to the cause of such accidents, with the use of an IoT-enabled smart automobile by preventing drunken and juvenile drivers from accessing the automobile. A survey highlights that between 2008 and 2017, drunken driving and use of drugs has led to 211,405 accidents across India resulting in the death of 76,446 people. Data also indicates that 2317 juvenile drivers died in accidents during the year 2018. Our solution is to curb the problem at the root, by preventing the driver from accessing the automobile when they are in an intoxicated state or are juvenile. A graphene sensor is fitted on the steering wheel of the automobile. The driver will have to blow air on the sensor; depending on the result, the driver will be given access/denied permission to start the automobile. A fingerprint sensor will also be installed along the rims of the wheel which in turn will fetch data from the cloud and check the age of the driver who is driving once every 30 min. The graphene sensor and the fingerprint sensor are interfaced with the Microcontroller FRDM-K64F which is linked to the cloud-stored database. When the graphene sensor and the fingerprint sensor give permission, the automobile can be started and driven.

Chapter 12
Print ISBN: 978-93-91215-58-3, eBook ISBN: 978-93-91215-59-0

Device to Device Mobile Communication with Novel Key Exchange Protocol

S. M. Asha Banu[1*], D. Mohana Geetha[2] and V. Nandalal[1]

DOI: 10.9734/bpi/castr/v3/9388D

ABSTRACT

The model decomposition and some iteration techniques in Stochastic Petri Nets (SPNs) to derive its approximate steady state solution, which is used to obtain the approximate performance metrics of the D2D communications in terms of average queue length, mean throughput, average packet delay and packet dropping probability of each link. Simulations are performed to verify the analytical results under different traffic loads and interference conditions. The protocol that we use here is Novel Key Exchange protocol. The goal of this technique is to present advances on the current 3GPP LTE-advanced system related to Device-to-Device (D2D).

Keywords: SPN; throughput; LTE; 3GPP.

1. INTRODUCTION

The performance enhancement to Device to Device (D2D) communication with interference is major goal for wireless communication. One of the main challenges of LTE-advanced is to recover the local-area services and enhance spectrum efficiency. To achieve those goals technical capabilities are required [1]. Device to Device (Device to Device (D2D) communications is new technology that offer wireless peer-to-peer services and improve spectrum utilization in LTE-advanced network. D2D communications was initially proposed in cellular network as a new paradigm to enhance network performance. The motivation for D2D come directly from the user requirements and D2D communications will serve specific future needs. These needs include new types of short range services and data intensive short range applications. The emergence of context-aware and multimedia applications have constituted the motivation of using D2D technology [2]. D2D communications will allow new types of services such multimedia downloading, video streaming, online gaming and peer-to-peer (P2P) file sharing.

2. PROGRESSIONS IN DEVICE-TO-DEVICE (D2D) COMMUNICATION

The very first wireless networks were discovered during the pre-industrial age. These primarily were based on Line of Sight (LOS) transmissions.

Table 1. Progressions in the field of Communication

First Generation(1G)	• Came into existence in the early 1980s and supported data rates up to 2.8Kbps. • These networks were circuit switched. • The analog cellular technology was referred to as Analog Mobile Phone Service (AMPS) and it used Frequency Division Multiplexing (FDM).

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Abstract

Internet of Medical Things (IoMT) Enabled Skin Lesion Detection and Classification Using Optimal Segmentation and Restricted Boltzmann Machines

Cognitive Internet of Medical Things for Smart Healthcare pp 195-209 | Cite as

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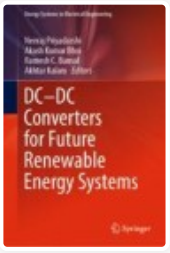
Chapter
First Online: 20 October 2020

Part of the Studies in Systems, Decision and Control book series (SSDC, volume 311)

Abstract

In recent times, Internet of Medical Things (IoMT) and cloud enabled healthcare applications and services finds helpful for effective decision-making. Melanoma is the serious kind of skin cancer, results to high death rate. Earlier identification of skin cancer can leads to maximum survival rate. But the diagnosis process becomes difficult and expensive because of the need of medical experts and complex medical equipments. To overcome this issue, the latest developments in IoMT based decision making system with maximum performance can be used. This study introduces a new IoMT based skin lesion detection and classification model using Optimal Segmentation and Restricted Boltzmann Machines (RBM), named OS-RBM model. The proposed OS-RBM model involves a series of steps namely image acquisition, gaussian filtering (GF) based preprocessing, segmentation, feature extraction, and classification. Then, optimal segmentation using artificial bee colony (ABC) with kapur's thresholding takes place. Besides, histogram and texture feature extraction



DC—DC Converters for Future Renewable Energy Systems pp 433–458

Overview of Bidirectional DC–DC Converters Topologies for Electric Vehicle and Renewable Energy System

S. Saravanan, P. Pandiyan, T. Chinnadurai, Ramji Tiwari & N. Prabaharan

Chapter | First Online: 28 September 2021

Part of the Energy Systems in Electrical Engineering book series (ESIEE)

Abstract

Design and evaluation of various DC-to-DC converter topologies are presented in this article for the applications of Battery-operated Electric Vehicles (BOEVs) and Plug-in-Hybrid Electric Vehicles (PHEVs). The comparison study of these converters is explained and analyzed depending upon the components utilized, output power, losses, efficiency, switching frequency, count, reliability, cost and electromagnetic interference

(EMI). In the bidirectional DC-to-DC converter, direction of power flow takes place in both forward and reverse directions which is widely used in diverse fields of applications. In this study, the overall reviews of converter topology and control strategies are discussed. This bidirectional converter is broadly classified into two categories depending upon the topology, namely isolated and non-isolated converter configurations. In addition, the switching strategies and control techniques for the subgroups of converter topologies are also presented.

Keywords

Batteries **Bidirectional power flow**

DC-DC converter **Electric vehicles**

Control system

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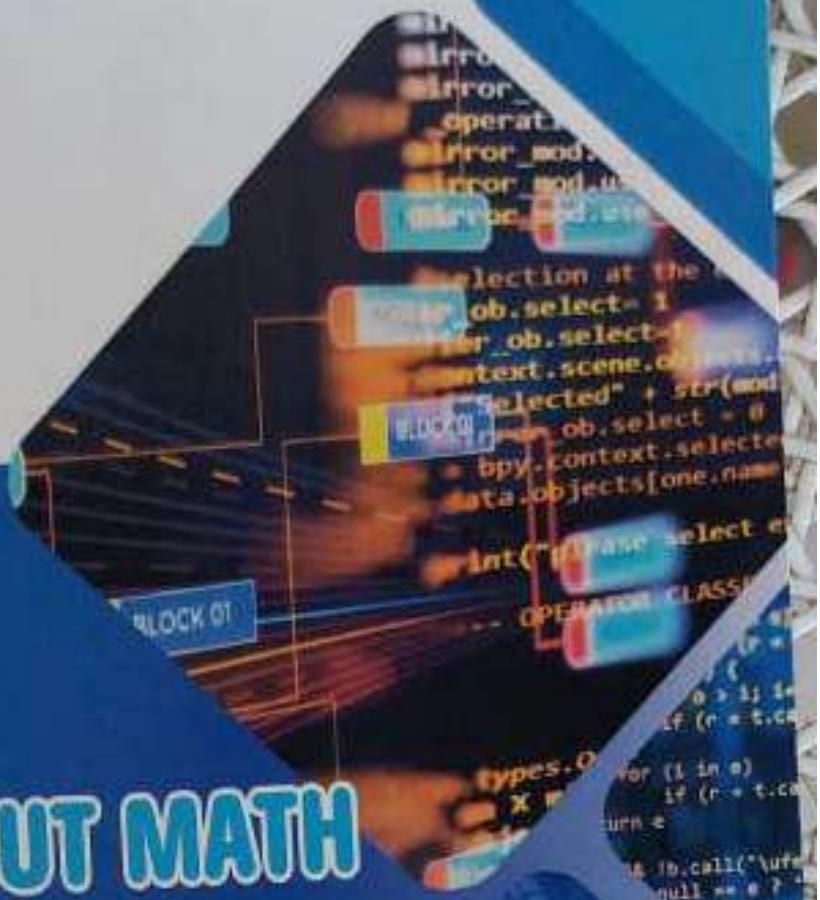

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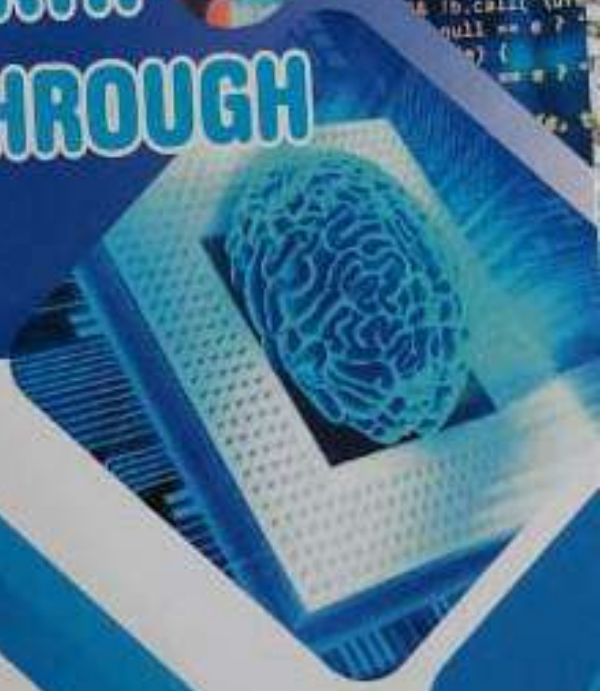

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Machine Learning Algorithms for Modelling Agro-climatic Indices: A Review

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G. Edwin Prem Kumar, M. Lydia

Conference paper
First Online: 14 July 2021

Part of the Smart Innovation, Systems and Technologies book series (SIST, volume 224)

Abstract

Modelling lays a solid platform to assess the effects of climate variability on agricultural crop yield and management. It also aids in measuring the effectiveness of control measures planned and to design optimal strategies to enhance agricultural productivity and crop intensity. Models that aid in predicting drought, soil quality, crop yield, etc. in the light of climate variabilities can go a long way in enhancing global food security. Efficient modelling of agro-climatic indices will simplify the upscaling of experimental observations and aid in the implementation of climate-smart agriculture. This paper aims to present a comprehensive review of the use of machine learning algorithms for modelling agro-climatic indices. Such models find effective application in crop yield forecasting, crop monitoring, and management, soil quality prediction, modelling evapotranspiration, rainfall, drought, and pest outbreaks. The research challenges and future research directions in this area have also been outlined.

Chapter – 16

TDMA BASED ENERGY EFFICIENT CLUSTER ROUTING APPROACH FOR SENSOR NETWORKS

D. N. A. Natraj*, Dr. K.B. Gurumoorthy, Dr. S. Gopinath****

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Abstract

Balancing the energy consumption and location accuracy is one of the critical tasks in WSN. Energy consumption of sensor nodes is measured in terms of route discovery, packet forwarding and data transmission. In this research work, it is proposed that scheduling based Optimal Energy Clustering Scheme (SOECS) to attain the maximum location accuracy and energy efficiency during route maintenance. In the proposed scheme, cluster is formed and TDMA scheduling algorithm is introduced to improve the energy efficiency using stable routes and scheduling table.

Index Terms : TDMA, WSN, Energy efficiency, location accuracy and scheduling algorithm

****

INTRODUCTION

I past few decades, Wireless Sensor Networks (WSN) plays a vital role in wireless network and growth of WSN rises rapidly. The wider detection range and flexibility was provided effectively due to radio waves and sensor nodes. The real time environment changes are detected by sensor nodes. The data gathering process is done by the sensor nodes and data aggregation is implemented to save the energy. Energy efficiency is the major issue in WSN and the consumption of energy can be measured based on various applications.

In this research work, cluster is formed with cluster heads which is chosen based on residual energy, distance to sink node and node capacity to increase the network lifetime. In previous work, it is concluded that balancing energy consumption and location accuracy is the biggest task in the sensor network.

2021 | Book

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Chapter

Introductory Chapter: Emerging Trends in Liquid Metals

Samson Jerold Samuel Chelladurai

1. Introduction

Liquid metals play a vital role in manufacturing of products. The state of liquid metal influences the microstructure and mechanical properties of end properties. Hardness, tensile strength, impact strength, fatigue strength, wear resistance, corrosion resistance are influenced by the liquid metal during manufacturing processes. Industries focused to produce the components with superior properties by utilizing the liquid metal in an effective way.

Liquid metal used in casting process used to produce the components according to the shape and size of the die used. In this process, the metal is heated in a furnace and reinforcements are added to produce the homogeneous mixture. The liquid molten mixture is poured into the die to produce the castings. Stir casting and squeeze casting process normally employed to produce particle reinforced composites and fiber reinforced composites can be produced by squeeze casting process. The products produced by these processes provide excellent hardness, tensile strength and wear resistance.

In addition, friction stir welding process is used to join similar and dissimilar metals and alloys. In this process, the rotational tool is used and frictional force is used to produce the heat during joining process. The rotational speed, frictional force and tool geometry which influence the properties of aluminum alloy. Industries using friction stir welding process in automotive, aerospace and marine industries because of its better welding efficiency.

At present, friction stir processing is used to modify the properties of materials at surface level. The hardness of materials can be improved by reinforcing nano particles in base material. The reinforcements are placed in holes and the rotational tool is used to produce the surface composites. The products produced by friction stir processing exhibits better hardness, tensile strength, corrosion and resistance to wear.

2. Conclusion

The main aim of this collection of book chapters primarily focused on Liquid metals of various manufacturing process used in aerospace and automobile industries. This volume offers original and experimental results which use new technologies which make the readers to read it. Review and research book chapters present novel research work in the field of composites, welding techniques and aluminum alloy.

Chapter

Microstructural and High Temperature Wear Characteristics of Plasma Transferred Arc Hardfaced Ni–Cr–Si–B-C Alloy Deposits

S. Gnanasekaran, Samson Jerold Samuel Chelladurai, G. Padmanaban and S. Sivananthan

Abstract

Due to the tough working environments, wear damage to nuclear reactor components is frequent. Usually, nuclear elements run at 573 k to 873 k. The feed water controller valves, used for the thundering of coolant flow, wear out faster among the reactor components. Austenitic stainless steels, using different methods for hardfacing, improve wear resistance to the cobalt and nickel alloys. Nickel based hardfacing is more resistant to wear than cobalt based hardfacing at high temperatures thanks to the solid oxide layers. Austenitic stainless-steel substrates generally favor nickel-based hardfaced (Ni–Cr-Si–B-C) over cobalt-driven hardfacing because this reduces radiation-induced nuclear activity. A well-known surface method for depositing nickel hardfacing, minimal dilution, alloys is the Plasma Transfer Arc (PTAs) weld technique. In this study the Ni-based alloy is hardfaced over a 316 L (N) ASS substratum with PTA hardfacing, for a dense of approximately 4–4.5 mm. The substrates and deposits were tested at different temperatures with a pin on disc wear (room temperature, 150 and 250°C).When grinding with 1000 grain SiC abrasive paper, the wear test samples were polished to the roughness value (Ra) of less than 0,25 m.The deposit showed a variety of wear mechanisms regarding the test temperature. Using friction and wear values and wear analysis, the wear mechanisms were determined. There was a considerable wear loss at room temperature (RT).At 423 K operating heat, mild ploughing at short sliding distances and tribo-oxidation were carried out with increasing sliding time.The primary wear mechanism was adherence at the time of operating temperature at 623 K, but as the sliding distance widened, tribo-oxidation improved. In combination with a working hardened substrate, the formation of an oxide layer could significantly reduce the wear loss of nickel-based alloys.

Keywords: Austenitic stainless steel, PTA hardfacing, Wear, Microstructure

1. Introduction

Austenitic type 316 L (N) is commonly used in fast-breeder (FBR) reactors at temperatures between 573 K and 874 K as structural material. Austenitic stainless