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A Survey on Application of Deep Learning: Unsupervised Auto Encoder

Mr.Raghavendrachar S[1] , Dr. Rekha B Venkatapur[2]

[1]Assistant professor, Department of Computer Science and Engineering, KSIT, Bengaluru-560109,raghavendrachars@ksit.edu.in

[2]Professor & Head, Department of Computer Science and Engineering, KSIT, Bengaluru-560109,rekhabvenkatapur@ksit.edu.in

Abstract – Deep Learning is playing an increasingly important role in our lives. Deep learning is not a restricted learning approach, but it abides various procedures and topographies which can be applied to an immense speculum of complicated problems. Deep learning methods have made a significant break-through with appreciable performance in a wide variety of applications with useful security tools. It is considered to be the best choice for discovering complex architecture in high-dimensional data by employing back propagation algorithm. Deep learning has already made a huge impact in areas, such as cancer diagnosis, precision medicine, self-driving cars, predictive forecasting, biological image classification, speech recognition, smart city and many more. This paper mainly focuses on the working of unsupervised autoencoders and its applications.

Key Words: Deep Learning, back propagation, unsupervised learning, autoencoders,

I. INTRODUCTION

Machine learning is a subsection of Artificial Intelligence that imparts the system, the benefits to automatically learn from the concepts and knowledge without being explicitly programmed. Neural Network is a machine learning technique that is inspired by and resembles the human nervous system and the structure of the brain. It consists of processing units organized in input, hidden and output layers. The nodes or units in each layer are connected to nodes in adjacent layers. Each connection has a weight value. The inputs are multiplied by the respective weights and summed at each unit. The sum then undergoes a transformation based on the activation function, which is in most cases is a sigmoid function, tan hyperbolic or rectified linear unit (ReLU).The implementation of neural networks consists of the following steps:

1. Acquire training and testing data set
2. Train the network
3. Make prediction with test data

Deep learning technology works on the Artificial Neural Network system (ANNs). These ANNs constantly take learning algorithms and by continuously increasing the amounts of data, the efficiency of training processes can be improved. Deep learning is also known as deep structured learning and hierarchical learning that consists of multiple layers which includes nonlinear processing units for the purpose of conversion and feature extraction.

In the Deep learning methodology, the term "Deep" enumerates the concept of numerous layers through which the data is transformed. It must be noted that there is a difference between Deep learning and Representational learning. Representational learning includes the set of methods that helps the machine to take the raw data as input and determines the representations for the detection and classification purpose.

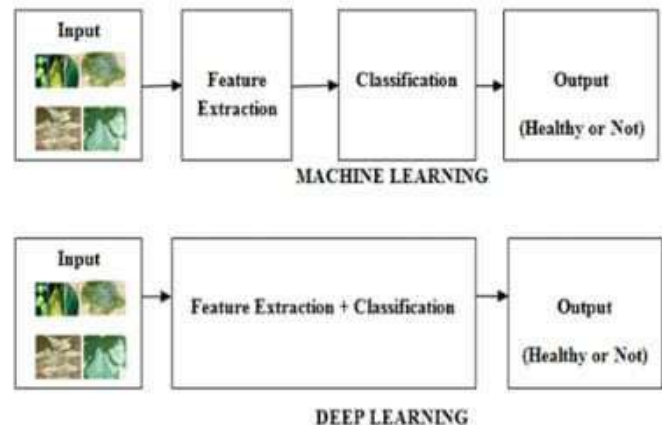Figure 1 depicts the differences between the Machine learning and Deep learning.

Figure 1: Difference between Machine Learning and Deep Learning

Deep learning techniques use nonlinear transformations and model abstractions at a high level in large databases. It also describes that a machine transforms its internal attributes, which are required to enumerate the descriptions in each layer, by accepting the abstractions and representations from the previous layer.

Deep learning paradigm uses a massive ground truth designated data to find the unique features, combinations of features and then constructs an integrated feature extraction and classification model to figure out a variety of applications. The meaningful characteristic of deep learning is the data that uses general purpose methods, various extensive features and no intervention of human engineers.

The key factors on which Deep learning methodology is based are:
- Nonlinear processing in multiple layers or Stages.
- Supervised or Unsupervised learning.

Nonlinear processing in multiple layers to a hierarchical method in which the present layer accepts the results from the previous layer and passes its output as input to the next layer. Hierarchy is established among layers so as to organize the importance of the data. Here Supervised and Unsupervised learning are linked to the class target label. Its availability means a supervised system and absence indicates an unsupervised system.

The structure of this paper is organized as follows: Section II is about the Basic Architectures of Deep Neural Network (DNN). Section III provides detailed explanation about the working of unsupervised autoencoders architecture.Section IV provides advantages and applications of Unsupervised autoencoders and finally Section V is the conclusion of this paper.

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Nearest Neighbor Monitoring Mechanism for Efficient and Secure Data Aggregation in WSN Environment

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The Internet of Things has observed tremendous growth in the last two decades utilizing wireless sensor technologies and as the number of smart devices and applications increases, the need for data collection and analysis data becomes increasingly difficult. In general sensor nodes are powered through batteries hence it restricts the efficiency of Wireless Senor Network. Data aggregation is a top-most mechanism for redundancy discarding and improvising the network lifetime. It also possesses various advantages which include minimizing the energy consumption, minimizing the network traffic. Furthermore, as sensor nodes are deployed in hostile averments and transmit sensitive information, designed networks are prone to various attacks. As a result, the focus of this research work is on designing and developing the Nearest Neighbor Monitoring (NN-SDA) mechanism to provide secure data aggregation in an efficient and secured manner. Furthermore, the proposed mechanism allows the nearest neighbour node to monitor and detect the malicious node. Further, the NN-SDA-mechanism algorithm is designed by adding the anomaly and detecting the malicious nodes. The NN-SDA mechanism is evaluated in terms of malicious packet identification rate, average energy utilization, and system throughput and the comparative analysis is performed with the existing model.

Keywords: *Data Aggregation, Secure Data Aggregation, NN-SDA Mechanism, WSN,*

I.   INTRODUCTION

Internet of Things (IoT) has been promoting several recent trending domains such as communication networks, Big Data, Artificial Intelligence, and so on. Furthermore, the recent development of these domains has elevated IoT to attract more and more investment in terms of commercial aspects, technical aspects, and improvisation of human life aspects. Generally, IoT can connect many devices and emerge in every application from critical to daily life applications such as smart homes, smart grid, intelligent transportation, and so on. It also requires an efficient network to perform optimally, which is normalized through Wireless Sensor Network (WSN). The IoT and WSN are parallelly interconnected and the growth has been analyzed.

WSN aka Wireless Sensor Network is a defined network that is deployed in inaccessible areas and performs data propagation; the main role of this constituted device in WSN is to sense the data, gather the data and transmit it to a base station for further process. The idea of WSN possesses various advantages in different applications like military service, agriculture, and so on. Furthermore, the implementation cost is very low for applications everywhere such as wildfire management, monitoring management, military surveillance, homeland security, and etc. Moreover, huge utilization of sensor networks contributed to huge data generation and processed and WSN possesses various restrictions such as network lifetime due to limited energy since most of the sensors are battery-based and recharging is highly improbable since it is deployed in remote areas.

Moreover, due to sensor node nature and deployment environment, WSN has different security issues than the traditional network. Some of them are:

A. Data confidentiality: Data confidentiality is one approach where the secrecy of the sensed data through a physical sensor device is secured and not disclosed to a third party.
B. Data integrity: Data confidentiality guarantees the security of data but it does not protect from data being altered; hence

Efficient Intrusion detection of malicious node using Bayesian Hybrid Detection in MANET

Sangeetha. V[1],Vaneeta M[2],S Swapna Kumar[3],Piyush Kumar Pareek[4], Sunanda Dixit[5]

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Abstract. In the past several years there have been considerable interest developed towards study on distributed networks. The key underlying application under such technology is mobile ad hoc networks (MANETs), which have been exploiting the range of research opportunity. In MANET due to infrastructure less network and dynamic topology changes, security becomes one of the important issues. The defense strategies such as intrusion detection system (IDS) impose a method to build efficient detection of malicious nodes. Game theory is mainly used to study security problems identification in MANET. The Bayesian Hybrid Detection (BHD) is applied to detect the malicious nodes. A BHD allows the defender to adjust based on opponent observation. The simulation is carried out using the MATLAB for malicious nodes detection. The security degree is measured by the payoff index and system stability index (SSI). Also the processing vs. accuracy index level is measured to identify reliability of detection. The proposed system enables for enhancing security in MANET's by modeling the interactions among a malicious node with number of legitimate nodes. This is suitable for future works on multilayer security problem in MANET.

Keywords: Bayesian game, Cluster nodes, Game theory, Intrusions, genetic algorithms

1. Introduction

In the wireless networking the nodes are spatially and randomly distributed, leads to exploration field of mobile ad hoc networks (MANETs). MANET is a network that consist of set of mobile nodes that communicate each other over wireless link. These mobile nodes will always establish dynamically own network without any infrastructure to forward data in a multi-hop mode. In a MANET, each mobile node can separately organize and interconnect with each other over bandwidth uncomfortable wireless relatives where, safety has become one of the important issues. Some of the applications in

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Efficient Two-Layer Image Protection with Wavelet Transform Compression

M. Vaneeta, V. Sangeetha, and S. Swapna Kumar

Abstract The encoding complexity of an image format is a vigorously updating area of study in the field of two-layer protection with wavelet transform compression. In the proposed method, hybrid 2D-FDCT watermarking and RSA encryption for multispectral images predicted an efficient system. This approach satisfies the encryption security, robustness and classification accuracy retention of an algorithm. The two-layer protection of encrypted and embedded watermark image followed by wavelet transform compression minimizes the file size in the exhaustive process for encoding. An important merit is that encoding time is very much reduced in contrast to other security and compression mechanisms. The enhanced value of PSNR as well as trade-off of MES, normalized cross-correlation, the average difference and structural content improves the storage large file size medical image and improves bandwidth to an acceptable level.

Keywords Compression · DCT · Encryption · Image processing · Watermarking

1 Introduction

The Internet of things (IoT) is considered as the interconnection of computing devices such as in factory machinery, medical equipment or domestic appliances, enabling

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Certificate

This Certificates Acknowledges and Honors

Prof. /Dr. /Mr. /Ms. __Rekha B Venkatapur__ of

__KSIT__ has Participated and Presented Paper Titled

" __A Survey on Application of Deep learing:__
__unsupervised Auto Encoder__
"

in

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A Survey on Application of Deep Learning: Unsupervised Auto Encoder

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Abstract – Deep Learning is playing an increasingly important role in our lives. Deep learning is not a restricted learning approach, but it abides various procedures and topographies which can be applied to an immense speculum of complicated problems. Deep learning methods have made a significant break-through with appreciable performance in a wide variety of applications with useful security tools. It is considered to be the best choice for discovering complex architecture in high-dimensional data by employing back propagation algorithm. Deep learning has already made a huge impact in areas, such as cancer diagnosis, precision medicine, self-driving cars, predictive forecasting, biological image classification, speech recognition, smart city and many more. This paper mainly focuses on the working of unsupervised autoencoders and its applications.

Key Words: Deep Learning, back propagation, unsupervised learning, autoencoders,

I. INTRODUCTION

Machine learning is a subsection of Artificial Intelligence that imparts the system, the benefits to automatically learn from the concepts and knowledge without being explicitly programmed. Neural Network is a machine learning technique that is inspired by and resembles the human nervous system and the structure of the brain. It consists of processing units organized in input, hidden and output layers. The nodes or units in each layer are connected to nodes in adjacent layers. Each connection has a weight value. The inputs are multiplied by the respective weights and summed at each unit. The sum then undergoes a transformation based on the activation function, which is in most cases is a sigmoid function, tan hyperbolic or rectified linear unit (ReLU).The implementation of neural networks consists of the following steps:

1. Acquire training and testing data set
2. Train the network
3. Make prediction with test data

Deep learning technology works on the Artificial Neural Network system (ANNs). These ANNs constantly take learning algorithms and by continuously increasing the amounts of data, the efficiency of training processes can be improved. Deep learning is also known as deep structured learning and hierarchical learning that consists of multiple layers which includes nonlinear processing units for the purpose of conversion and feature extraction.

In the Deep learning methodology, the term "Deep" enumerates the concept of numerous layers through which the data is transformed. It must be noted that there is a difference between Deep learning and Representational learning. Representational learning includes the set of methods that helps the machine to take the raw data as input and determines the representations for the detection and classification purpose.

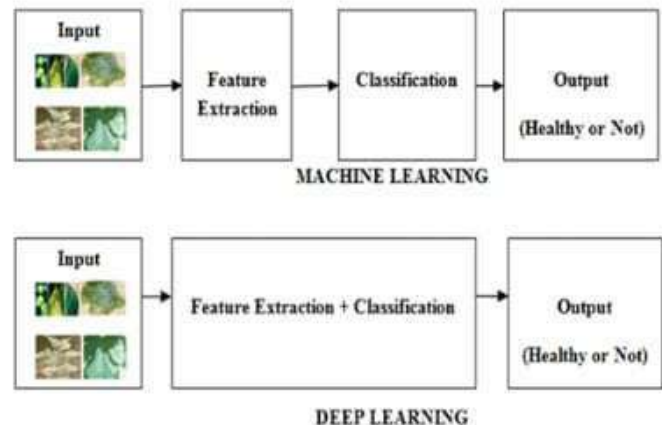Figure 1 depicts the differences between the Machine learning and Deep learning.

Figure 1: Difference between Machine Learning and Deep Learning

Deep learning techniques use nonlinear transformations and model abstractions at a high level in large databases. It also describes that a machine transforms its internal attributes, which are required to enumerate the descriptions in each layer, by accepting the abstractions and representations from the previous layer.

Deep learning paradigm uses a massive ground truth designated data to find the unique features, combinations of features and then constructs an integrated feature extraction and classification model to figure out a variety of applications. The meaningful characteristic of deep learning is the data that uses general purpose methods, various extensive features and no intervention of human engineers.

The key factors on which Deep learning methodology is based are:
 ➤ Nonlinear processing in multiple layers or Stages.
 ➤ Supervised or Unsupervised learning.

Nonlinear processing in multiple layers to a hierarchical method in which the present layer accepts the results from the previous layer and passes its output as input to the next layer. Hierarchy is established among layers so as to organize the importance of the data. Here Supervised and Unsupervised learning are linked to the class target label. Its availability means a supervised system and absence indicates an unsupervised system.

The structure of this paper is organized as follows: Section II is about the Basic Architectures of Deep Neural Network (DNN). Section III provides detailed explanation about the working of unsupervised autoencoders architecture.Section IV provides advantages and applications of Unsupervised autoencoders and finally Section V is the conclusion of this paper.

An Exploratory Study for Process Optimization in IT Industry

H. Aditya Pai, Piyush Kumar Pareek, M. S. Narasimha Murthy, Sunanda Dixit, and Sneha Karamadi

Abstract Software defect prediction (SDP) is the method essential for testing during life cycle of the software development (LCSD). It finds out those stages of the software which are more prone towards defect and requires extensive testing. In this way, the testing can be without usage of extra resources. Though SDP is an essential step in the testing, it is not always easy to do the prediction of which stage of the software is having defects. There are various reasons which barriers for the smooth performances of defect prediction. In this paper, we carried out the survey on different IT companies and analyzed their software process model by performing SWOT chart. The chart gave us the idea to perform value stream mapping (VSM) that identifies the non-value added process activities in the IT companies. Also failure effective analysis model (FEAM) to know the outcome or threats over the defects identified. We also came up with the hypothesis for the delay in software development process. ANOVA analysis was carried out to understand the turbulence in the business environment.

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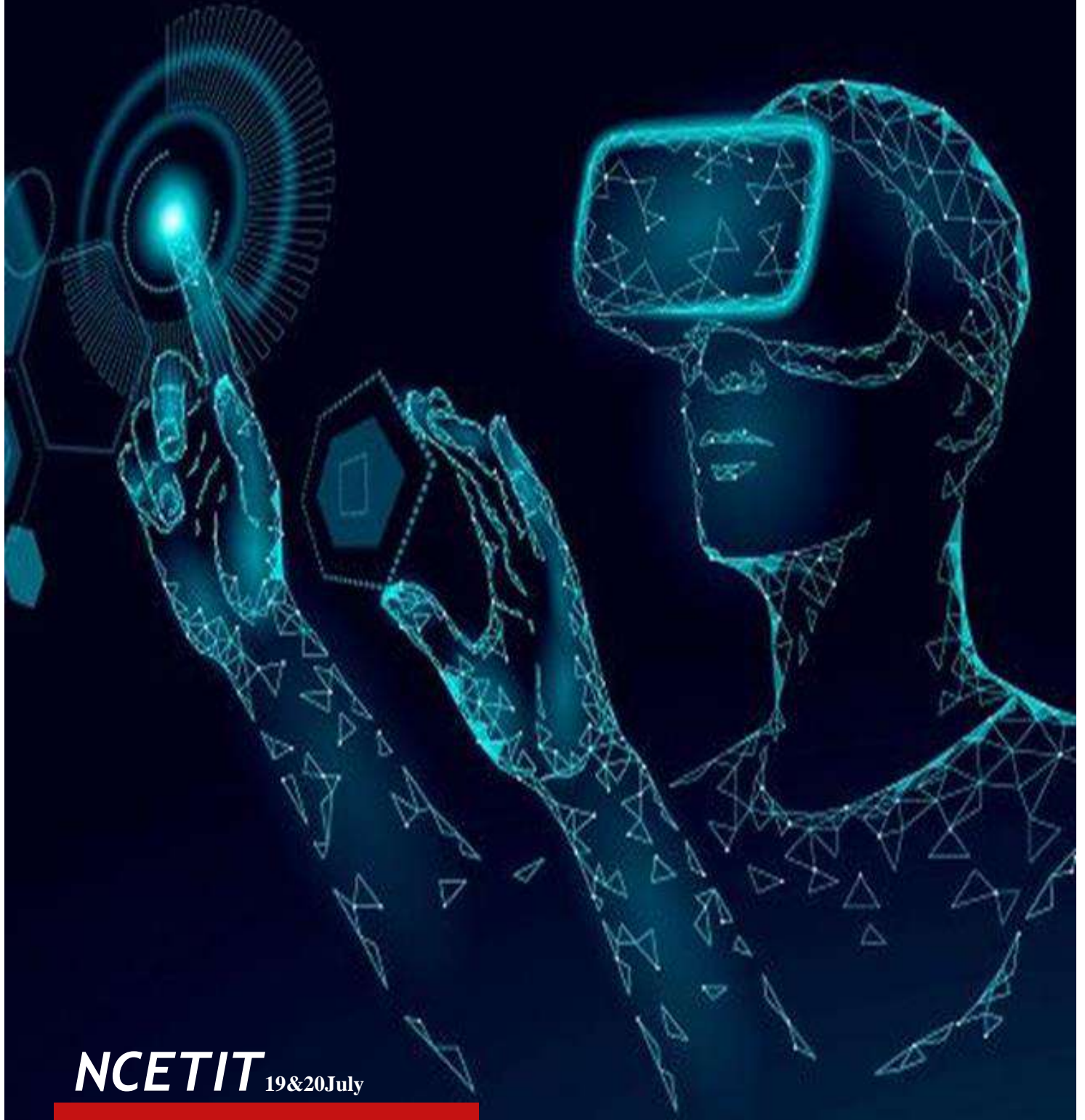Department of Computer Science and Engineering, K. S. Institute of Technology, Bangalore, India
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A Study on Secure Software Development Life Cycle (SSDLC)

S. G. Gollagi, M. S. Narasimha Murthy, H. Aditya Pai,
Piyush Kumar Pareek, and Sunanda Dixit

Abstract This article analyzes how estimation can be applied to programming headway techniques and work products to screen and improve the security characteristics of the item being made. It is centered on specialists—organizers, engineers, necessities geniuses, coders, analyzers, and managers—who need bearing concerning the best way to deal with push toward estimation for secure improvement. It does not address security measurements of system or network operations. At this moment, it has focused on understanding secure programming improvement life cycle.

Keywords Secure programming · Headway techniques · Measurements products

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TABLE OF CONTENTS

Voice Based E-Prescription

A system for Appointment Booking, Prescribing and EHR.

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Abstract - We all know that we are going through tuff times due to COVID-19 and this has made the fact of meeting anyone in person difficult. People in remote areas have difficulty traveling to a clinic. But as of now, we all know that most of the consultations are done online / over the phone, which results in miscommunication of the medicines prescribed. Also if the patient forgets the medicine name, dosage, he /she has to keep contacting the doctor again and again.Our idea mainly focuses on eliminating these errors and helping the doctors generate prescriptions by voice commands and send the same to the patient as SMS/PDF.

I. INTRODUCTION

The outbreak of Novel Coronavirus disease is a grave menace to the entire world affecting millions of people. Massive annual conferences to small society meetings alike have moved to the online mode. The new format (online mode) poses numerous technical and organizational challenges, but it also offers opportunities. Our application helps in reaching out to patients virtually and consulting them. Also, adverse drug effects are a major cause of death in the world with tens of thousand deaths occurring across the world each year because of medication or prescription errors. Many of such errors involve the administration of the wrong drug or dosage by caregivers to patients due to indecipherable handwritings, drug interactions, confusing drug names etc. The adoption of voice-based e-prescription could eliminate some of these errors because they allow prescription information to be captured and heard through voice response rather than in the physician's handwriting. This project presents a design and implementation of a voice-based E-Prescription along with the ability to book appointments using the IVR system as the main idea. This application helps the doctors to generate patient prescriptions using voice commands and send the same as an SMS for people who do not have the facility of a smartphone or as a pdf to the patients over social media. Furthermore, the application has features wherein the doctors can access records of patients and send messages. Patients can book appointments based on doctors availability on our app or using the IVR system. They can also use the CHATBOT feature to book tests prescribed by the doctor and access their records as well independent of the type of phone they use.

II. METHODOLOGY

The existing systems offer consultation facilities but it limits its facilities to only high end devices like smartphone/PC users. We propose a system where all the users will have to go through a one time registration process, which helps the system maintain patients' profiles as well as classify smartphone and basic cell phone users.

Once the user is registered, he/she can,

1. Book appointments
2. View prescriptions
3. Hear the audio version of the prescription

The Method is to process an audio file of prescription and reach out to people with smartphones or those with basic cell phones.

The system has 2 major entities

2.1 Converting the audio file to Text format and sending it as PDF/SMS to the patient.

The idea is to use the prescription audio file, recorded by the doctor, feed it as input to Google speech-to-text api and further process the prescription to a proper format.

The API being used is Google's Speech-to-Text API, The Speech-to-Text API synchronous recognition request is a way of performing recognition on speech audiodata. After Speech-to-Text processes and recognizes all of the audio, it returns a response.

2.2 Storing the audio file of prescription in the database.

The audio file can be played either on the application or

REMOTE ACCESS

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Abstract - An Android Mobile Application that provides an simple way to access your mobile contacts, helps users convert the audio profile of the mobile(silent to ringer), tracks the location of the mobile, enables users to lock the mobile, fetch battery status and latest OTPs remotely just through a simple SMS without Internet Connectivity.

1. INTRODUCTION

We are in a society where everything is happening at the speed of a light. Keeping track of quite demanding essentials in this expeditious life. Here comes the use of our application called 'Remote Access'. It's a personal offline assistant to help you with the frequent problems faced in daily life.

Remote Access application performs the following operations:

1. Fetches the required contacts from the phone.
2. Changes the sound profile if it is in silent mode.
3. Track your phone's location if you lost it.
4. Lock your phone if you feel it is insecure.
5. Fetch the battery status of the mobile.
6. Fetch the latest OTPs from the mobile.

All the above features can be implemented by just sending a simple SMS from any phone remotely with the correct passcode and required action to be performed. Then the app reads the message received and performs accordingly by sending back the message with the required details. Here the passcode is used for the purpose of the security.

2. PURPOSE

Humans often tend to forget their phone and get into trouble. This becomes serious in some situations when people can't find their phones in some important situations or if they feel that their phone is insecure. There are many people who want an alternative to access their phones remotely.

Here's where our application comes into use. Remote Access is a light weight offline Android application that can help everyone with the common problems faced in day-to-day life. Upon installing this application on the remote mobile then you can just send a simple SMS from any mobile with the required keyword, access key and action to be performed. The response will be sent back to you from your mobile. Also in the same way we can also track the location, change the sound profile and also lock the phone by just sending a simple SMS.

3. LITERATURE SURVEY

Upon a Survey, A person on an average loses his nine items daily. That nearly comes into 3,300 items per year close to 2.5 days. Over an average of 60.5 years of adult life, that's nearly 200 thousand items lost and over 150 days wasted in a lifetime. The most commonly lost items in the UK survey are mobile / smartphone, house keys, car keys, paperwork, sunglasses/ glasses.

So its clear Mobile phones are misplaced a lot. What if we had misplaced/forgot the mobile and had gone out without knowing it. We can't imagine this situation, without our mobile and having to make some important calls, or want to know the OTPs received/

Based on going through online references we thought of conducting a very own survey. Upon surveying a group of around 100 people varying from teenagers to elderly persons through Google forms the results were as below:
Google Form link:
- https://forms.gle/LYs1zJLorBW85zHC8

LISTEN FOR VISION

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Abstract—Blind is one who is unable to see because of injury, disease, or a congenital condition. The biggest challenge for a blind person is to navigate around places. There are around 253 million people worldwide who are blind and these people face lots of challenges to perform their day to day activities especially related to moving and navigation. In this context we came up with this model of android application that is simple and easy to use to help blind people in navigation by detecting surrounding obstacles and giving the audio instructions regarding the same.

Keywords—Visually impaired , Android

1. INTRODUCTION

Visual impairment is decreased ability to see or complete loss of sight (blind) and cannot be corrected by any normal means like lenses or spectacles. Visually impaired people face many problems among which detecting obstacles and navigating between places are important ones .With an intention to help such people we are building an android application that can be used for moving around conveniently. Visually impaired people have to deal with lot of challenging conditions due to their poor vision or complete loss of sight. Quality of life is affected for a visually impaired person due to his/her wanting to constantly depend on some other person for completing there day to day activities that increases the rate of depression and anxiety. With this application person can overcome the use of mobility aids like canes. In our android application we use a camera mainly that detects the surrounding objects and the instructions are given in form of audio signals. In simple this android application uses a smart phone with camera that's easily available to detect surrounding objects that can help navigating in unknown environments.

2. LITERATURE SURVEY

With vision being most vital sense organ for humans its disorder or loss affects the person in terms of his performance of day to day activities. In recent advancement of technology ,scientists are trying to develop various systems to make visually impaired individuals help feel more   independent and get better awareness of their surroundings. These developments prove to be boon in lives of blind individuals. Various systems have been developed to help blind users understand about their surroundings.

A smart cane was built that alerts the blind people to get the obstacles ahead of him through voice alert and vibration

could help them in walking carefully with less accident. But this could cost a blind and it makes them uncomfortable to move in crowded environment.

Viziyon is a IOT based hand held device which detects the surrounding obstacles and alerts the user. Ruxandra proposed a smart phone based system which   determines the type of object classifying as normal or urgent.

3. METHODOLOGY

Camera Access - Our application request for the permission to access the smart phone camera.

Camera2API is the latest Android camera framework API that replaces the deprecated camera framework libraries. Camera2API can customize phone camera automatically and takes images at faster intervals and applies effects and filters directly if required. This way it makes camera2 API more powerful.
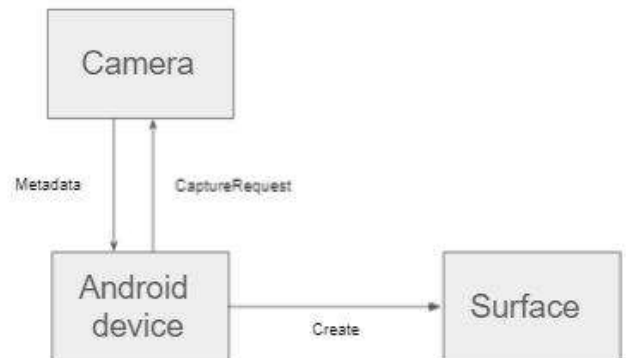

Fig 1 Camera2API Block Diagram

Dataset - Coco is a large-scale dataset featured with object detection, segmentation and captioning or labeling. COCO consist of 328,000 images with 2.5 million zlabeled instances and 91 object categories with 11 super categories. COCO has several features like object detection, object segmentation, stuff segmentation, recognition in context.

Object detection - Tensor Flow Lite is Tensor Flow's light solution for mobile devices. It enables inference called on-device machine

ANIMAL INTRUSION DETECTION USING MACHINE LEARNING

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Abstract:

In India agriculture is the prop of the economy and majority of the population depend on agriculture for their livelihood. But one of the common threats that is human animal conflict is causing a major damage to the farmland, which is responsible for the crop loss and this is leading to financial loss to the farmers. To overcome this issue the help of Machine Learning and Raspberry pi, we have proposed a digital surveillance system to monitor the farmland for any intrusion of animal and to divert them with the help of the siren. Our system is also used to alert the farmers and forest officials by sending an alert Twilio message.

Keywords: Machine Learning, Raspberry Pi, SMS Twilio

E-DEFENCE FOR PEOPLE SAFETY

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Abstract:

Every day in our society we come across so many issues like medical emergencies, accidents, kidnaps and many more. Where in people especially girls are into serious problems. This made us think about an application which basically is a system for detecting the problem and alerting the authorities using most commonly available electronic devices like smart phones.

Keywords:

Short Message Service (SMS), Global Positioning System (GPS), Global System for Mobile Application (GSM), Security.

DETECTION OF MELANOMA SKIN CANCER

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Abstract

Dermatology diseases are one of the biggest medical issues in 21st century due to its highly expensive and complex diagnosis. Skin cancer are mainly of 2 types – Melanoma and Non -melanoma. Early detection of this fatal Melanoma skin disease increases the curing rate to 90%. In diagnosis of medical images vision of computer can play a vital role and is also proved by many existing systems.

Keywords:

Skin Cancer, Melanoma, CNN, Inception v3, Firebase.

1. INTRODUCTION

SKIN- Jack of all trades meaning it performs various tasks like protects the body by covering all the muscles and other tissues, maintaining the body optimal temperature in extreme climatic conditions, helps as an excretory organ removing wastes through sweating. Melanocyte if present in human skin causes Melanoma. Our task is mainly centered around detection of this lethal type of malignant growth. Melanoma can be detected by straightforward visual assessment known as ABCDE examination where A stands for ASSYMETRIC cancerous mole tend to be irregular in shape. B stands for BORDER it appears to be ragged and notched while C stands for COLOR includes uneven shades of colors. D stands for DIAMETER. If a mole becomes greater than ¼ inch is cancerous and E stands for EVOLVING. High closeness between various sorts of skin lesions makes a visual appraisal troublesome and prompts wrong examination. Therefore, an automated system is proposed to ease out the skin lesions classification.

2. OBJECTIVES

The below are objectives:
- To design and develop novel image processing approached based system for melanoma detection.
- Segregating the available datasets into benign and malignant region based on training the network.
- Segment the region of interest effectively by removing the noise.
- Feature extraction for effectively extracting properties of benign and malignant region.
- Training Neural Network with variation in layers to find best efficiency.
- Test case to load the image and identify the test image is benign or malignant.
- Graphical User Interface to use the program functionality.

3. METHODOLOGY

The system consists of four stages:

3.1 DATASET COLLECTION:

The appropriate dataset was collected from International Skin Imaging Collaboration (ISIC) Archive. Goal of the archive is to serve as image resources for public for research and development, teaching, testing of diagnostic AI algorithms.
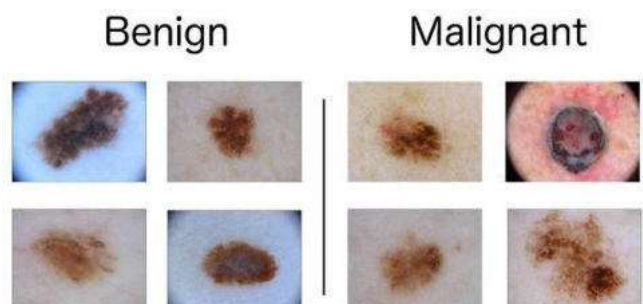

Fig 3.1 Sample images from Dataset

3.2 PRE-PROCESSING:

The Inception v3 architecture of Convolutional Neural Network is used to create a model. Image preprocessing is said to be crucial part of system and can directly influence accuracy that the model attains. Inception v3 offers many

Human Activity Recognition in Videos Using SVM

JYOTHY INSTITUTE OF TECHNOLOGY

Authors Details

Sanket S Kulkarni, Dr. Sahana D Gowda, Dr. Rekha B Venkatapur

JyNConTR201

TR2 In Possession is known to be 9/10ths of the Law in the modern world. It is therefore imperative that one be able to protect one's properties from worldly harms such as thefts and security breaches, property damage, individuals with malicious intent, etc. The methodologies used by the intruders and hackers for stealing have been exponentially improving due to the advent of technology in the modern world. The monitoring techniques also need to improve with the changing world. With the improvement in mass media and various forms of communication, the environment can now be monitored and controlled to the advantage of the property owners. The new techniques used to tackle fraud and destruction include video surveillance and tracking. By using the technologies every inch and second of the area can be monitored and captured in interest. However, so far the technologies used are passive in nature, i.e. the monitoring systems only help to detect the crime but do not participate actively in stopping or curbing the crime while it takes place. We have also developed a technique for detecting motion in a video stream environment and this is an idea to ensure that the surveillance systems not only engage effectively in preventing the crime, but do so when the crime is taking place. Therefore, a system is used to detect any motion in a live streaming video and the software will activate once motion is detected in the live stream.

Selection of particular activation functions in different research fields

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TR2

Activation functions play a very important role in the success of deep learning models. In this paper we will review the performance of different activation functions in different scenarios. Accuracy of deep learning models is high due to the concept of hidden layers. Considering the fact to improve the performance of different deep neural networks, status, development and the result of different activation functions is required. More specifically, advantages and disadvantages of different activation functions in different research fields will be outlined in this paper. This paper will also give you a brief idea about which activation function is better than the other activation functions in terms of performance.

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Critical Survey for Scheduling and Resource Allocation Methods in Hadoop-MapReduce on Clouds

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ABSTRACT

Cloud computing is defined as the computing platform which hosts the various services and application for the users and businesses. It provides the access to the users with less cost and easily accessibility from any part of the world and works on the theory of Pay as you go service. In cloud environment computing resources provided as they demanded. It forms upon developments of virtualization. Cost of computing resources, highlighting towards resource scalability and provided on-demand services. It permits business consequences to upgrade and degrade their resources based on requirements. Meanwhile an open source Hadoop performance MapReduce has become a widespread model for data-intensive application for short job and low response time. IN this paper, we study the works on scheduling and resource allocation for matching the processing load .We provide the comparison of the same, comparison includes the various methodology along with their shortcomings.

Keywords : Hadoop, Mapreduce, Survey, Scheduling, Resource Allocation.

I. INTRODUCTION

Cloud environment is a recent technology to offer services to clients at a little time that is fast serving time . As growing number of current applications develop data-intensive in nature. In the past era, the World Wide Web has been embraced as an perfect platform for emerging data-intensive applications, meanwhile the communication model of the Web is more open and powerful[1]. Search engines, online auctions, webmail, and online retail sales are illustrative data-intensive Web applications where data mining and web indexing necessity to entree expanding data sets which ranges from few gigabytes to several terabytes or now a days petabytes. For example, in Google the MapReduce model processing parallel nearly twenty petabytes of data per day. Cluster computing environments for parallel data processing with high-performance MapReduce is an attractive model. The scalability of MapReduce is verified as high, since a job in the MapReduce model is segregated into abundant block, the appearance of section headings, document margins, column width, column spacing and other features.

Small tasks successively on several machines in a large-scale cluster. Hadoop is popular open-source implementation of the Google's MapReduce model is mainly developed by Yahoo [3]. Yahoo servers using

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Publication

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Other accepted papers will be published in the ICIES 2020 conference proceedings.

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Ransomware Attack Prediction using Machine Learning Techniques

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Abstract—**The Tremendous growth in current world technology has increased malware variants to exhibit polymorphic attacks. Ransomware is a category of malware that is the biggest threats in cyber security today. Ransomware capture victims' computer by encrypting or locking files and demand the payment of some ransom in crypto-currency for the restoration of the files. This attack causes significant amount of financial loss to individuals, institutions, and businesses. Ransomware performs many file-related operations in a small amount of time to lock or to encrypt files of a victim's machine.** Hence, to handle ransomware attacks more efficient methods need to be developed. **The three types of ransomware detection techniques available are: static, dynamic and hybrid. In this paper, we present static ransomware prediction model using benign and exploit dataset of log files. Random Forest, Artificial Neural Networks and Support Vector Machine algorithms are used to analyze our model. Our work analysis shows that random forest gives best accuracy of 99.476% compared to Artificial Neural Networks and Support Vector Machine with accuracy of 98.200% and 97.776%.**

Keywords— Artificial Neural Networks, Malware, Ransomware prediction, Random Forest Support Vector Machine.

I. INTRODUCTION

The use of digital devices is increasing day by day in this modern era. The threats on these digital devices are also rising. Virus, worms and malware are malicious programs that can attack and cause trouble by gaining access to digital devices. There are many malicious programs, such as virus, worm, or spyware released in the wild, which can seriously harm digital systems. Among the current malicious software, ransomware is a recent kind of malware that has blowout mainly in last couple of years. Ransomware is created from two words payment and product. Webster's word reference described Ransom as "cash that is paid with a specific end goal to free somebody who has been caught or grabbed" and as "a thought paid or requested for the arrival of somebody or something from top captivity"[1].

Locker and Crypto are the two main types of ransomware attacks[2]. Locker ransomwares do not manipulate the victim's files but it locks the system by preventing users accessing the computer. In contrast, Crypto ransomwares encrypt the victim's files to restrict the user's access to their files and it also does not manipulate the files. Crypto-ransomware searches for files with specific extensions and encrypt only those files. It does not encrypt the whole hard-disk. The attacker releases the encryption key to the victim if and only if the ransom is paid through secret payment mechanisms, such as cryptocurrencies. Compared to locker ransomware crypto ransomwares are more hazardous. Thus, the ultimate goal of the attacker is to earn money. Therefore, ransomware detection mechanism should be very effective and efficient to avoid loss of money or data.

Ransomware attack victims are enterprises, Small-Medium Businesses (SMB), and individuals. As per the survey conducted in 2016, out of 290 selected organizations, 50% were its victims, and around 40% of its target victims have paid millions of ransom in a year[3]. Some examples of Crypto ransomware comprise of CryptoWall [4], CryptoLocker [5], Locky [6] and SamSam [7]. Examples of Locker ransomware include: CTB-locker [8]. Recently in 2017, Wannacry the most well-known and destructive ransomware variant locked the data and demanded a ransom of about £92 million from many organizations including Britain"s National Health Service, some of Spain"s largest companies like Telefónica, and computers through Russia, Ukraine, and Taiwan [9]. The growing danger of ransomware attacks requires way out for prevention, detection and removing ransomwares programs. Even though various malware detection and classification approaches have been proposed, these approaches are not suitable to defend against ransomware because these approaches generally focus on distinguishing malware from benign files. Therefore, a new detection mechanism specialized for ransomware is needed, and the mechanism should focus on ransomware-specific characteristics to distinguish ransomware from other types of malware as well as benign files. Moreover, considering that a key characteristic of ransomware infection, it is necessary to

Comparision between K-Means and Expectation Maximization algorithm using Iris plant

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Abstract— **Nowadays many courses in machine learning will start with clustering, as everyone knows clustering is very simple and important in many application. Clustering is an unsupervised learning problem. An unsupervised learning is a machine learning technique in which the model is allowed to work on its own to discover data. Unsupervised learning always deals with unlabelled data and can be more unpredictable compared to other learning techniques. Clustering is a technique that will find pattern in a collection of unlabelled data. Clustering algorithms will process and find clusters in given data. There are many clustering algorithm to utilize. In this paper, two clustering algorithms like K-means and Expectation Maximization(EM) algorithm is utilized for examination of the species in iris plants. K-Means clustering algorithm is partitioning method. Gaussian mixture model(GMM) is multivariate distribution which is consists of a mixture of one or more multivariate Gaussian distribution component. This paper considers Iris plant as the fundamental object, in which we distinguish various classes: Setosa, Versicolour, and Virginica. We apply Kmeans and EM algorithm to compare clustering performance using parameters like sepal and petal length and width. The main observation in the paper is that EM-GMM algorithm performs significantly better than k-means.**

Keywords— *algorithms, cluster, data, kmeans, machine learning.*

I. INTRODUCTION

Clustering is a procedure of collection of data points into incoherent groups with the goal that the data in a similar group are comparative, however information having a place with various group contrast[1]. A cluster is an assortment of data that are like each other are in same group and not at all like the data in different clusters. At present the utilizations of PC innovation is expanding quickly which made high volume and high dimensional informational collections. These information is put away carefully in electronic media, in this manner giving potential to the improvement of

programmed information examination, order and information recovery. The clustering is significant piece of the information examination which apportioned given dataset in to subset of comparable information focuses in every subset and unlike information from different groups. The Clustering[2] is helpful with expanding in computerized information to draw important data or drawing fascinating patterns from the informational indexes consequently it discovers applications in numerous fields like bioinformatics, design acknowledgment, picture handling, information mining, advertising and financial aspects and so forth.

There have been many clustering techniques proposed yet K-means[3] is one of the most seasoned and most well known grouping procedures. In this technique the quantity of group (k) is predefined before examination and afterward the determination of the underlying centroids will be made arbitrarily and it followed by iterative procedure of appointing every information highlight its closest centroid. This procedure will continue rehashing until assembly rules met. Nonetheless, there are deficiencies of K-implies, it is critical to proposed procedures that improve the conclusive outcome of examination. In this paper some significant enhancements towards the precision and proficiency of the grouping strategy is done.

Machine learning method Unsupervised Learning techniques consist of clustering algorithm that works by finding the comparable information for unlabeled model by isolating the information as indicated by their comparative nature[4]. Clustering intends to partition the dataset into a majority of the group's information by sharing some attribute of every subset. In such expresses, the separation work technique is utilized to quantify the closeness or nearness of every information thing. There are several
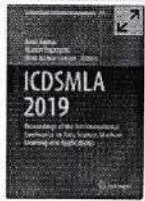
ICDSMLA 2019 pp 152–159

Power-Cognizant Proactive Routing Protocol for Amending Energy in Ad-hoc Networks

B. Devika ✉ & P. N. Sudha

Conference paper | First Online: 19 May 2020

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Abstract

The execution of an Ad hoc Wireless Network is controlled by a key factor "power", as it is the essential resource of any communication system. Utilizing such power effectively and efficiently is the most important Task. Power has to be optimized according to the requirement. In an ad hoc network, nodes exchange information with each other by forming a multi-hop wireless network & sustaining connectivity in a localized fashion. Optimizing power in such a network is a significant challenge ad hoc routing protocols are power hungry as they expend a substantially large amount of

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Power-Cognizant Proactive Routing Protocol for Amending Energy in Ad-hoc Networks

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Abstract. The execution of an Ad hoc Wireless Network is controlled by a key factor "power", as it is the essential resource of any communication system. Utilizing such power effectively and efficiently is the most important Task. Power has to be optimized according to the requirement. In an ad hoc network, nodes exchange information with each other by forming a multi-hop wireless network & sustaining connectivity in a localized fashion. Optimizing power in such a network is a significant challenge ad hoc routing protocols are power hungry as they expend a substantially large amount of battery power contained in the nodes. Hence routing in an ad hoc network is eminently power restricted. Research has been done choosing the appropriate routing protocol at the network layer and power aware protocol at MAC layer. In this paper, a proactive routing protocol has been implemented which is power aware. FSR is the routing protocol chosen and MAC 802.11 standards have been used in combination of a routing protocol to optimize power. The simulation is executed using NS-2 and the power consumption has reduced.

Keywords: Ad hoc networks · Fisheye state · Manet · Mac · Power cognizant

1 Introduction

Wireless communication is the quickly expanding & most vital technological areas in the communication field. Our lives are unimaginable without Wireless communication like TV, Radio, Mobile, Radar, GPS, Wifi, Bluetooth, RFID etc. In Latin ad hoc means "for this purpose". Ad hoc networks are group of self-organizing nodes or terminals that exchange information with each other by combining a multi-hop wireless network and sustaining connectivity in a suburbanized manner in an infrastructure less environment. Several classifications of Ad hoc networks are MANET, VANET, FANET, WSN etc. Ad hoc network operate with IEEE 802-11 standards. Initially ad hoc networks were designed for military and disaster recovery applications, due to their fast deployment feature without the existence of any infrastructure. But with rapid growth of mobile communication, MANETs are regarded as important contemplate in the future inception of system technologies [1].

Various power optimization techniques are existent in Ad hoc networks. Optimization of power is of at most importance in Ad hoc networks as their structure is autonomous and non-existence of central governing body. Various layers are affected while optimizing power in ad hoc network like physical, network & MAC layer [2].
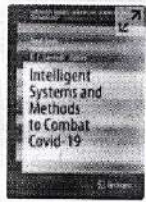
Intelligent Systems and Methods to Combat Covid-19 pp 11–17

COVID-19 Apps: Privacy and Security Concerns

Surekha Borra ✉

Chapter | First Online: 27 August 2020

Part of the book series: SpringerBriefs in Applied Sciences and Technology ((BRIEFSINTELL))

Abstract

Today, with the rapid spread of COVID-19, many governments and start-ups are coming forward to develop smartphone apps that trace where we all are, whom we met and for how long, with a goal of interrupting new chains by informing potentially exposed people. These new platforms make use of anonymous use of Bluetooth technology and GPS, enabled either on smartphones or armbands in order to prepare maps corresponding to quarantine monitoring, contact tracing, movement tracking, social distancing and density reports. With different apps for different countries, one thing most of the apps facilitate is tracking. To save lives during

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COVID-19 Apps: Privacy and Security Concerns

Surekha Borra

Abstract Today, with the rapid spread of COVID-19, many governments and start-ups are coming forward to develop smartphone apps that trace where we all are, whom we met and for how long, with a goal of interrupting new chains by informing potentially exposed people. These new platforms make use of anonymous use of Bluetooth technology and GPS, enabled either on smartphones or armbands in order to prepare maps corresponding to quarantine monitoring, contact tracing, movement tracking, social distancing and density reports. With different apps for different countries, one thing most of the apps facilitate is tracking. To save lives during an extraordinary crisis, many governments are willing to overlook privacy implications. Keeping in view that the sensitive data being collected is not exclusive to public health organizations and governments, this chapter explores different apps that were developed aiming to combat COVID-19, and the related personal data privacy concerns that arise in the post-coronavirus era.

Keywords Apps · Bluetooth · COVID-19 · GPS · Privacy · Security

1 Introduction

While the researchers around the world are busy developing COVID-19 related AI-driven tools [1, 2], forecasting methods [3–5], screening [6] and image-assisted decision support systems [7], COVID-19 mobile apps are being developed for a variety of reasons, ranging from quarantine monitoring, contact tracing, movement tracking, social distancing and density reports. All these mobile apps with or without the consent of the user collect user personal information, including location histories and stores the data on the third-party servers, which might lead to serious cyberthreats and associated fears. Hence, reporting the available apps and analysing the side effects including security and privacy concerns is the need of the hour.

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Proceeding of First Doctoral Symposium on Natural Computing Research pp 155–162

Automation of Anomaly Detection in Warehouses: A Machine Learning-Based Approach

P. Pratiksha ✉, K. Pooja, Onkar Misra & Surekha Borra

Conference paper | First Online: 19 March 2021

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Abstract

The warehouses offer its clients top notch services for a wide scope of items. To ensure the best conditions for the put away merchandise, the owners of warehouses must ensure faultless state. The warehouses must be operational on a day in and day out premise and need to

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Automation of Anomaly Detection in Warehouses: A Machine Learning-Based Approach

P. Pratiksha, K. Pooja, Onkar Misra, and Surekha Borra

Abstract The warehouses offer its clients top notch services for a wide scope of items. To ensure the best conditions for the put away merchandise, the owners of warehouses must ensure faultless state. The warehouses must be operational on a day in and day out premise and need to offer storage for stocking seeds, pharmaceuticals items, etc. The focus of this paper is to survey the state-of-the-art technologies used for anomaly detection with respect to warehouse safety, and to propose an automatic alerting system based on machine learning techniques. After experimenting with several classifiers, the cubic support vector machine (SVM) classifier model exhibited highest accuracy for AlexNet-based features on the given dataset.

Keywords Machine learning · Sensors · Imaging · Warehouses

1 Introduction

Warehousing services are becoming more and more distinct based on the stored material and the type of warehouses. The stored materials require an ideal environmental set up to maintain quality of the products which depends upon the temperature, humidity, degree of light, presence of CO_2, etc. Each product demands its own arrangement of recommended temperature settings. To safeguard the temperature wide open to, the nature of protection is of extreme significance. Leakages in the

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Proceeding of First Doctoral Symposium on Natural Computing Research pp 163–170

Acute-Lymphoblastic Leukemia Detection Through Deep Transfer Learning Approach of Neural Network

Tali Veerappa Renuka ✉ & Borra Surekha

Conference paper | First Online: 19 March 2021

Abstract

Manual examination of blood smears under microscope is observer subjective, time consuming, and labor intensive. A computerized system would be best choice for quantitative and qualitative inspection of blood smear images. This paper presents classification of white blood cells into healthy and unhealthy using SVM machine learning model. Features from images are extracted with transfer learning approach of deep convolutional neural network using Alex-net pretrained model. This approach validates the process of discriminating white blood cells into healthy and acute lymphoblastic leukemia affected

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Acute-Lymphoblastic Leukemia Detection Through Deep Transfer Learning Approach of Neural Network

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Keywords Leukemia · Convolutional neural network · SVM · Alex-net · ALL

1 Introduction

One of the significant inventions in recent modern medicine is digital pathology. Cell morphology and tissue structure are studied using digital pathology and microscopy images. Disease diagnosis by medical practitioner is fully dependent on pathological investigations. Manual analysis of microscopic blood smear images by highly expert pathologists is very labor intensive, time consuming, and subjected to inter-observer variations. Recent innovations in image processing and computer vision techniques have improvised digital pathology in terms of objectivity and reproducibility. Hence, since past decades, many researchers and practitioners have diverted their focus on

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Intelligent System Design pp 827–835

Secure Anti-piracy System

Junaid Khan, Akshatha Shenoy, K. M. Bhavana, Megha S. Savalgi & Surekha Borra ✉

Abstract

This paper proposes a secure movie distribution and playing system which can avoid piracy in theaters. In the proposed system, an IR LED based anti-piracy screen is set up for discouraging illegal recording of movies. The optimization of power is achieved through progressive activation and deactivation of IR LEDs. Copyright protection of movie file is provided using invisible watermarking, and confidentiality and security are provided by encrypting the movie file as well as by enabling the decryption based on the authorized location verification of theaters. The system is also designed to allow only the authorized personnel to operate the

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Secure Anti-piracy System

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Abstract This paper proposes a secure movie distribution and playing system which can avoid piracy in theaters. In the proposed system, an IR LED based anti-piracy screen is set up for discouraging illegal recording of movies. The optimization of power is achieved through progressive activation and deactivation of IR LEDs. Copyright protection of movie file is provided using invisible watermarking, and confidentiality and security are provided by encrypting the movie file as well as by enabling the decryption based on the authorized location verification of theaters. The system is also designed to allow only the authorized personnel to operate the system upon receiving the one-time password (OTP) from the owner. The experimental results proved that the developed system is secure and discourages the illegal video recording by creating artificial degradation in the recoded video. The system also helps to resolve rightful ownership via invisible watermarking.

Keywords Piracy · Watermarking · Encryption · Global positioning system (GPS) · Security · Copyright protection

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Encyclopedia of Cryptography, Security and Privacy pp 1–4

Biometric Sensors

Surekha Borra, Nilanjan Dey & R. Simon Sherratt

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Synonyms

Biometric detectors; Biometric scanners; Biometric transducers

Definition

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Biometric Sensors

Surekha Borra[1], Nilanjan Dey[2], and R. Simon Sherratt[3]
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Synonyms

Biometric detectors; Biometric scanners; Biometric transducers

Definition

A biometric sensor is an electronic device that captures raw biometric samples in a form that is suitable for generation of a biometric template, which can further be used for verification or authentication of an individual's identity. Examples include cameras, computer keyboards, microphones, fingerprint readers, and iris scanners.

Theory

Biometric sensors are the heart of any biometric identity system. Sensors range from a simple microphone for voice capture to a high-definition camera for face capture or are specially designed to scan the iris, vein pattern, retina, signatures, and gait motion.

Biometric sensors capture reflected, transmitted, or projected acoustic or light signals, capacitive levels, or pressure differences proportional to the biometric trait. The transducers inbuilt within the sensors convert sensor measurements into electrical signals for further processing, digitization, storing, and matching.

The selection of biometric sensors and their classification depends upon the application, the biometric modality, technology, user acceptance, shape and size, connectivity, installation type, capturing distance, interface, contact type, capture mode, capture time, operating temperature, storage temperature, depth of field, illumination, resolution, device dimensions, weight, power source, power consumption, cost, false acceptance rate (FAR), and false rejection rate (FRR).

Most biometric sensors act like scanners to convert an individual's physical characteristics into images at different spatial resolutions, pixel resolutions, frame rate, compression levels, pixel depths, and imaging wavelengths. Multispectral imaging sensors generate multiple images at varying wavelengths and differing levels of

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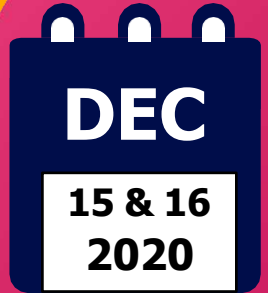
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ORIGINAL RESEARCH

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Electronic Gauge for Micron Measurement and its Relevance to Industry 4.0

B. A. Prathima[1] · P. N. Sudha[1] · P. M. Suresh[2] · M. Mruthunjaya[3]

Abstract

Micron measurement of the manufactured part is an integral part of production process. This decides qualification of the manufactured part's acceptance or rejection. First principle methods are well established to measure the manufactured parts with utmost certainty. In the advent of Industry 4.0 in the digital revolution era of manufacturing, an electronic measurement of various dimensional parameters is gaining prominence. The shortcomings of measurement by first principle methods such as written documents, inability to automate the analysis and hence cloud connectivity, etc., can be achieved with electronic gauging. In the proposed work, an electronic gauge with micron resolution and cloud connectivity is devised for measurement of outer diameter of a mass production component. The measured readings are validated using statistical methods for the Gauge Repeatability and Reproducibility (GRR). The electronic gauge registered greater stability in the key parameters of gauge capability such as Equipment Variation (EV), Appraiser Variation (AV), Part Variation (PV) and %GRR over its conventional measurement counterpart. The electronic gauge recorded %GRR of 7.81% against conventional gauge's %GRR of 14.47%. This made the electronic gauge acceptable without any conditions for the measurement of a critical parameter in mass production environment. The paper extended the scope to record the measurement readings in cloud-enabled platform to make the measurement system ready in the context of Industry 4.0. The proposed model has been implemented and validated in a mass production set-up, engaged in manufacturing of precision auto components.

Keywords Electronic gauge · Metrology · Micron measurement · Industry 4.0 · LVDT · GRR

Introduction

Digitalization is the new revolution in the manufacturing world. Manufacturing industry is compelled to shift towards digitalization to increase productivity, performance and

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competitiveness. Mechanization, electrification, automation have contributed significantly during their first, second and third revolutions respectively. Digitalization is termed as the fourth industrial revolution. This is all set to play a major role in close looping many aspects of manufacturing activity by carrying big data from shop floor to the management through the Cyber Physical System (CPS) and coming back to the shop floor in the form of meaningful decisions to enhance productivity, performance and finally clocking higher degree of competitiveness.

Various degrees of digitalization have happened in different areas of the manufacturing industry. However, to reap the maximum benefits of industry 4.0 capabilities and possibilities, all areas of manufacturing such as production, quality, maintenance, supply chain, human resource management, supplier integrations, etc., also are expected to attain fair levels of maturity in digitalization.

In this paper, measurement of manufactured part is taken up for digitalization. Measurement of micron resolution dimension using electronic gauge equipped with Linear

REVIEW ARTICLE

AlexNet Based Pirate Detection System

Ritu Patil[1] · N. Vishal Goutham[1] · G. R. Sunil Kumar[1] · Surekha Borra[1]

Abstract

Finding the pirate is a crucial job in fighting the piracy-related problems. Factors such as wide option of seating positions, and modern technological advancements in real-time application make this task more difficult to tackle. The use of watermarking techniques is a classic method to gather information about the pirated video, but they have their own shortcomings. This paper reviews the current techniques which are used to combat the piracy problems in theatres, techniques to identify the pirates, brings a contrast on their performances, and proposes a more efficient pirate detection system.

Introduction

In the current world of digitalization, any individual can shoot the videos using digital camcorders, mobile phones, etc., and distribute the recorded content via the Internet. Movie piracy corresponds to movie theft by an anonymous person who records the movie from inside the theatre using devices such as digital camcorders or smartphones. The pirate then circulates the pirated content via the Internet or sells in the form of DVD's illegally. Digitalization has made smartphones available to everyone at low cost than ever before. These smart phones have a decent camera quality. Using these, the pirates record the videos. This has directed in flow of the illegal recordings at an exceptional rate within the piracy market. Moreover, the availability of high-speed Internet facilities at most of the places has made it very much easier to upload these recordings on Internet websites.

Movie piracy is a very widely spread crime in many countries. The trends in online and theatre piracy have reached record heights and threatening industry supply chains. Some of the most vulnerable pirated contents from online are music, motion pictures, print media, and software. In Indian film industry, piracy is becoming a crucial issue. Every year,

the Digital Cinema Industry (DCI) is suffering huge number of losses due to these illegally recorded movies in theatres. It might be in the theatres or from the over-the-top (OTT platforms). The Motion Pictures Association of America (MPAA) has conducted a deep investigation about piracy in the movie field in the year 2005. And correspondingly, the statistic report testifies that U. S. motion picture studios lose 6.1 billion dollars or more every year. This amount of loss in the profits cause a financial crisis for the studios.

Using the forensic watermarking system, the illegal recording can be found on the Internet and can be used in finding out the culprit. However, by that time, the pirated movie would have been circulated in a wide manner where it cannot be stopped. Digital watermarking technology seems to be taking care of when it comes to copyright protection criteria for both traditional film and digital cinema content. A few of the rules have been defined by the Data Centre Interconnect (DCI). The forensic mark contains details about the film, such as time stamp and location of the theatre as per the DCI rules. The information extracted from the pirated file conveys when and where the recording is being done. Electronic watermarks, however, can only be used to track the unauthorized delivery of digital content, so they cannot deter anyone from illegally filming movies with a camcorder in a cinema theatre.

This paper focuses mainly on finding the pirate who records film content in the theatre, with an objective to prevent people, from capturing videos of the movie played in the theatre, thereby reduce, and terminate piracy in the cine field.

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Ensemble learning as a prerogative method of predicting mortality of patients with cardiovascular diseases

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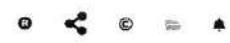
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Document Sections

I. Introduction

II. Prediction Model Using
Logistic Regression
(PLR)

III. Prediction Model Using
Random Forest (PRF)

IV. Prediction Model Using
Neural networks(PNN)

V. Conclusion

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Abstract:

Among diseases that account for higher death rates, Cardio Vascular Diseases (CVD) stand forefront. Many works
have been carried out since long to predict effectiveness in mortality prediction using models like data mining, logistic
regression, neural networks etc. considering only traditional cardiovascular risk factors. As time and technologies
evolved with incorporation of newer features these models ended up with predicted mortality rate of an accuracy 60-
70%. There are many more attributes to be explored that are significant in predicting mortality rate in CVD patients,
opening the scope to develop prediction models with traditional and non-traditional risk factors, much wider. This paper
is focused on predicting mortality rates using three models. Each model's performance metrics are calculated to check
the accuracy of the model. This helps one to build models that could best predict the outcome. Use of Ensemble
learning method enhanced the prediction accuracy to 91%. This helps to validate the decision more accurately about
mortality predictions and thereby assessing the risk.

Conference Location: Bangalore, India

I. Introduction

Cardiovascular problems are predominantly the number one death-causing factors in many countries [1]. Often heart disease and cardiovascular disease are used interchangeably. Any changes in the regular rhythm of the heart, pacing, number of beats, and other irregularities cause cardiac problems [2]. Few are considered to be trivial and some are very serious conditions leading to death if immediate medical attention is not given. Cardiovascular problems include atrial arrhythmia, ventricular arrhythmia, myocardial infarction, cardiomyopathy, congestive _____ disease [3]. Timely provision of correct treatment only can save the life of a person. Here _____ rely on ECG/EKG test. More there is now no predictive analytics to predict ultra and possibly pre-emptive measures or solutions before the onset of the disease. Stroke can be prevented _____

Authors   ⌄

Figures   ⌄

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Keywords   ⌄

Metrics   ⌄

Ensemble learning as a prerogative method of predicting mortality of patients with cardiovascular diseases

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Abstract— Among diseases that account for higher death rates, Cardio Vascular Diseases (CVD) stand forefront. Many works have been carried out since long to predict effectiveness in mortality prediction using models like data mining, logistic regression, neural networks etc. considering only traditional cardiovascular risk factors. As time and technologies evolved with incorporation of newer features these models ended up with predicted mortality rate of an accuracy 60-70%. There are many more attributes to be explored that are significant in predicting mortality rate in CVD patients, opening the scope to develop prediction models with traditional and non-traditional risk factors, much wider. This paper is focused on predicting mortality rates using three models. Each model's performance metrics are calculated to check the accuracy of the model. This helps one to build models that could best predict the outcome. Use of Ensemble learning method enhanced the prediction accuracy to 91%. This helps to validate the decision more accurately about mortality predictions and thereby assessing the risk.

Keywords— Cardiovascular diseases, Ensemble learning, Logistic Regression, Random forest.

I. INTRODUCTION

Cardiovascular problems are predominantly the number one death-causing factors in many countries [1]. Often heart disease and cardiovascular disease are used interchangeably. Any changes in the regular rhythm of the heart, pacing, number of beats, and other irregularities cause cardiac problems [2]. Few are considered to be trivial and some are very serious conditions leading to death if immediate medical attention is not given. Cardiovascular problems include atrial arrhythmias, ventricular arrhythmias, myocardial infarction, cardiomyopathy, congenital heart disease, and other vascular diseases [3]. Timely provision of correct treatment only can save the life of a person. Hence proper diagnosis and prognosis play an important role. More thrust is now on predictive analytics to provide care and possibly pre-emptive measures or treatment before the onset of the disease. Finding out the risk factors that could develop cardiovascular diseases and spreading the knowledge of these risk factors to the human community is one of the important objectives of Engineering in cardiology. Machine learning with statistical analysis helps achieve these goals [4] [5].

Ensemble learning, a machine learning technique/method that combines many algorithms built on the same data set or subsets of the same data set to solve a problem. This is found to improve the machine learning results and make better predictions compared to a single model [6]. This work on prediction focuses on three machine learning algorithms like Logistic Regression (LR), Random Forest (RF) and Neural Networks (NN). In this work, hospital deaths are predicted by considering the dataset consisting of the patient's vitals who are suffering from cardiovascular disease.

The dataset is obtained from a community initiative of MIT's GOSSIS, certified from the Harvard Privacy Lab, it consists of more than 130,000 patients who were in hospital Intensive Care Unit (ICU), in a span of one-year time frame. This dataset is part of consortium of many countries spanning Australia, Argentina, Brazil, Zealand, Sri Lanka, and around 200 hospitals in the United States. Among the many modalities in the dataset including physiological measurements are laboratory tests, Apache scores on severity of illness and the type of disease. Patients suffering from cardiovascular diseases are only considered in this study.

The paper is organized into different sections as follows - Prediction model using Logistic Regression, Prediction model using Random Forests and prediction model using Neural networks are discussed in Sections II, III and IV and in the ensuing section the Results are discussed.

II. PREDICTION MODEL USING LOGISTIC REGRESSION (PLR)

In PLR, a widespread supervised Machine Learning algorithm. Logistic Regression (LR) is used for statistical analysis. Given a set of variables which are independent and based on the observations made earlier, it predicts the dependent variable. Outcome obtained from LR is usually a discrete value. It is similar to the output of a logical function like True or False, Yes or No, 0 or 1, etc. It gives the probabilistic intermediate values between 0 and 1 instead of only 0 and 1. PLR is built mainly because of the ability of LR to provide probabilities and also classify the new data using datasets which are continuous and discrete in nature. This distinct feature of LR gives the shape "S", instead of fitting a regression line, as in the case of Linear regression.

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Machine Learning Technology Development In Cultivation of Paddy Crops Along With Management Issues

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ABSTRACT

In this research paper, a brief review of the machine learning technology development in the cultivation of paddy crops along with management issues is presented in a nutshell. The advancement of AI advances with profound learning calculations and information science has made new open doors in the cross-utilitarian rural advances space. In this paper, we present an innovation audit with a comprehensive report and Adaption of Advanced Machine Learning approaches in Paddy Crop Cultivation and Management. Worldwide innovation changes have impacted the rice planting designs in the course of recent many years. Accessibility of the gigantic data set of data identified with the different species has made the investigation simpler particularly in the front of robotized species acknowledgment utilizing progressed AI calculations. In this innovation audit, broad investigation and examination are led to anticipate, recognize, measure, arrange, and distinguish the rice plant infections and determining rice crops utilizing different AI procedures. The sifting and arrangement of the introduced articles show how the paddy cultivating and development cycle will profit by cutting edge AI innovations. Incorporation of sensor information with AI is giving the best approach to cultivate the executive's framework to develop into ongoing shrewd computerized reasoning empowered applications which give exact proposals and profound experiences for rancher choice help and activity.

Keywords— Algo, AI, Cultivation, Classification, CNN, ML, MLR, Paddy, RTR, Review, SVM.

INTRODUCTION

In the field of software engineering, the primary and significant region in the new patterns is Machine Learning. Programming applications dependent on AI are discovered to be more precise in expectation of the yield even without

unequivocally modified. Samuel Arthur planned the name Machine Learning [1-2]. AI predicts the yield by building the calculations and gain from the information set.ML is joined with different computational assignments like planning, expectation, investigation and so forth Unaided learning technique is getting more well known with exploratory information and information mining [3-4]. The unaided technique initially learns and develops the example dependent on the information and afterward used to distinguish the abnormalities. The prescient examination is a high-level strategy that utilizes complex models and numerical estimations for determining. These information designs help information investigators, subject matter experts, and creators to think of the best and precise outcomes [5-6]. A few strategies and numerous models were considered for the characterization of pictures naturally utilizing ML methods. Quality and the amount of the picture information assume a crucial part in the precision of programmed order and recognizable proof. Preprocessing is the initial move towards accomplishing required boundaries and that can be utilized for grouping. Picture handling applications principally rely upon the element extraction of the pictures. Different AI procedures and techniques which are applied for the different cycle of paddy development is concentrated in this audit [7-8].

ADAPTION OF ADVANCED MACHINE LEARNING TECHNOLOGIES IN PADDY CULTIVATION

Paddy Cultivation [12] domain has seen significant developments over past decades resulting in improvement and increase in crop production, agriculture process automation, and effective resource utilization. In the last twenty-five years, embedded systems [10], advanced and specialized sensors [17], Global Positioning Systems, and actuators have enabled the integration of many electromechanical machines specifically intelligent agricultural robots to the agriculture domain. The advent of new technologies like robotics, Image processing, neural networks,

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TRACK 2: Image Processing, Signal Processing and Gaming

CSIISGPID001 : E-Convocation Webapp Using VR

Amrutha V Deshpande, Chaitra, Lakshmi Prasanna B Karthik T C, Prof. Sanjoy Das
K S Institute of Technology, Bengaluru

Abstract– Due to COVID-19 restrictions, the better way of attending graduation is by VIRTUAL GRADUATION where students and staff members from various colleges can attend the annual convocation in their VR models. While the students are not physically present at the dais, they could be seen getting on dais and receiving their graduation degrees with the same enthusiasm.

CSIISGPID002 : Internet Gaming Disorder

Dr. Sangeetha. V, Ishika Naveen, Akshay C U,
Sai vidya Institute of Technology, Bengaluru

Abstract: Internet gaming is a legitimate leisure activity worldwide; however, there are emerging concerns that vast numbers of gamers are becoming addicted. Proposed as a behavioral addiction, IGD shares many similarities in both physical and psychosocial manifestations with substance use disorder, including cerebral changes on functional magnetic resonance imaging (fMRI). Among the gaming population, compared to females, adolescent and adult males demonstrate far more addictive internet gaming use in terms of screen hours, craving, and negative impacts on health, which have, in isolated incidents, also caused death. This paper includes findings from a scoping review of literature related to IGD as a means to raising awareness about emergent health issues. Included are three themes : unveiling the nature, impacts and symptoms of IGD; conceptualizing IGD through neuroscience; and treatment approaches to IGD. Afforded by these themes is an overview and synthesis of the existing literature regarding IGD as a means of providing direction for much needed research on gaming addiction and orienting primary care providers (PCPs) to the specificities of IGD in men's health. The findings are applied to a discussion of the connections between IGD and masculinity and the importance of recognizing how behaviors such as social isolation and game immersion can be maladaptive coping strategies.

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CSIISGPID004 : Armament Detection and Alert System Using YOLOV3

Shashank Shet K, Parth P Shah, Rohith R, Roopesh Kumar B N
K S Institute of Technology, Bengaluru

Abstract: Based on current situation around the world, there is major need of automated visual surveillance for security to detect arms and alert the public. The objective of this paper is to visually detect the arms in real time videos and alert upon successful detection. The proposed method is using YOLO-V3 algorithm. To improve the result, we have created our own dataset of weapons with all possible angles and merged data was trained using YOLO-V3 algorithm. The detector performed very well to detect weapons in different scenes with different rotations, scales and shapes. The results showed that YOLO-V3 can be used as an alternative of Faster RCNN. It provides much faster speed, nearly identical accuracy and can be used in a real time environment.

CSIISGPID006: Color Detection

Pavithra V, Ruchika Bhat, V Pushpa, Yaminisree T K
RNS Institute of Technology, Bengaluru

Abstract: Color detection has a wide application area on computer-based systems. In example, road sign detection, skin color detection, location detection etc. This paper describes a new method for color detection in RGB space. In order to improve any color detection system, neural networks, specialized for each color, are used. These expert neural networks are the keystone of the hierarchical structure.

CSIISGPID007: Survey on Document Resizing, Validation and Verification for Web API

Bhavesh Bhansali, P Kishore, Ganesh Maudghalya H G, Karan Raghunath, Vaneeta M
K S Institute of Technology, Bengaluru

Abstract : Technology has enabled us to upload and submit documents online at ease with computers, mobile phones, etc. With this service there also comes the hassle of monitoring, adjusting size and dimensions of the document images (jpeg and png) and the clarity of the content in images requested by the websites. This service will help the website developers and the user to receive and upload images respectively without having to monitor the size(memory) and dimensions of images. This paper proposes a Web API which on integration can be used by website developers for their website to resize images according to the size and/or dimensions of their requirement and verify they validity and authenticity of content in images. The version of the Web API that will be developed will provide validation and verification for Aadhaar card, PAN card and Driving License. Further updates might include the implementation of verification of more documents.

CSIISGPID008: Survey on automated and embedded system of facial recognition

Shuchitha.M , Y.Nithyashree
RNS Institute of Technology

Abstract: Facial recognition is an application of image processing. The automatic face recognition system works beyond the ability of human vision. The basic purpose of face recognition system is to compare the image video which is stored in a database with the image video in real time variation. As face detection is a computationally intensive task, an embedded solution would give rise to opportunities for discrete economical devices that could be applied and integrated into a vast majority of applications. This paper is an attempt to analyze the challenges in the automated face recognition system and the algorithms for the embedded system of FR and also the applications of facial recognition in surveillance.

CSIISGPID009: Counterfeit Notes Detection

Amogh R, Akshatha Ramesh, Nikhil Subramanya K, Darshan S, Roopesh Kumar B N
K S Institute of Technology,Bengaluru

Abstract: The advancement of color printing technology has increased the rate of fake currency note printing and duplicating the notes on a very large scale. Few years back, the printing could be done in a print house, but now anyone can print a currency note with maximum accuracy using a simple laser printer. As a result, the issue of fake notes instead of the genuine ones has been increased very largely. India has been unfortunately cursed with the problems like corruption and black money. And counterfeit of currency notes is also a big problem to it. This leads to design of a system that detects the fake currency note in a less time and in a more efficient manner. The proposed system gives an approach to verify the Indian currency notes. Verification of currency note is done by the concepts of image processing.

This article describes extraction of various features of Indian currency notes. The proposed system has got advantages like simplicity and high-performance speed. The result will predict whether the currency note is fake or not.

CSIISGPID010: *Fingervein Detection Using Image Processing*

Keerthi N, Meghana H S, Meghana G R, Vijayalaxmi Mekali, Shriraksha S Kanago
K S Institute of Technology, Bengaluru

Abstract: Finger vein detection is a technique used to recognize a person using their finger vein patterns which are present beneath the skin. Authentication using intrinsic biometrics such as finger veins provides high security, low forgery rate and confidentiality. This paper presents finger vein authentication process, including four modules: finger vein image acquisition, image processing module, feature extraction and matching module.

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CSIISGPID011: *A Contactless Attendance & Security System using Real-time Face Recognition*

Hanumesh V T, Manjunath A ,Prashanth K, Tharun K, Harshavardhan J R
K S Institute of Technology, Bengaluru.

Abstract: With an increased workforce, the ability to maintain attendance becomes too complex to be handled by a human or log entry books. Especially to maintain the entry and exit time. Current technologies like fingerprint and other bio-authentication systems require direct contact with the device. But in times like these, when the world is aware of a pandemic, it is important to ensure contactless mechanisms to register attendance. Instead of individually verifying each person, we need a quick mechanism to verify authorized entries into the premise.

CSIISGPID012 :A SURVEY ON SIGN LANGUAGE ATM FOR THE BLIND

Meghana J, Nayana Lakshmi K, Prerana B.K, Varshitha K, Nagaraj A
Jyothy Institute of Technology, Bengaluru

Abstract: The blind population often face difficulties in accessing ATM machines to withdraw money, which forces them to visit the bank. This makes them lose their time, thus causing them inconvenience. In order to overcome this issue, most of the ATM keypads offer Braille embossed keys with an intention to guide a blind individual to access the system. Though proven to be useful, the blind people with no knowledge of Braille fail to access these systems independently. Thus, to overcome this issue, other ways to access the ATM machines must be explored. One way out is to utilise Sign Language gestures to interact with the system in an environment that is secure. The survey on different methods proposed to recognize the sign language is conducted in this paper.

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Track 4(I): Data Analytics AI, ML & SE

CSIAMSPID001: READING A PHYSICAL BOOK FOR VISUALLY IMPAIRED PERSON THROUGH VOICE OVER NAVIGATION SYSTEM

Amogha Manjunatha, K Sakshi Kumari ,Swati Pai ,Srikala K M ,Dr. Ram P. Rustagi
K.S Institute of Technology, Bengaluru

Abstract: Reading is part of everyone's life. From looking at bills and letters to enjoying magazines and books during our free time, we read every single day. Unfortunately, it is very difficult for visually impaired people to find good reading materials in accessible formats. The proposed model helps the visually impaired person to read any book or document via voice messages. The introduction of an automatic turner and scanner makes this model more sophisticated. It makes use of a new style of scanning the document or book, where the scanner captures all the pages of a book while the turner continuously flips through the pages at regular intervals.

The proposed model turns the pages by using two arms, which work together to lift one page at a time and a slider to turn the page completely to the other side. Then it combines the concept of Optical Character Recognition (OCR) and Text to Speech Synthesizer (TTS) to convert the text to speech. The device also provides user information in audio format, including navigation control system, vocabulary, and many more features like authentication and user manual.

The speech recognition includes the following steps - capturing the voice input, converting the voice data to text, processing the text using grammars and semantics, and relaying the processed output to the user via audio. The navigation controls include options like START, STOP, RESUME, REPEAT,REPEAT FROM and many more commands which helps the application to read the book according to the user requirement. This kind of system helps visually impaired people to interact with the system effectively.

CSIAMSPID004 : Breast Cancer Detection Using Deep Learning: A Survey

Rohith K, Mr. Aditya Pai H, Rakshith R, Shri Harsha Kulkarni
K S Institute of Technology, Bengaluru

Abstract: Breast cancer is one of the major causes of death for women in today's world. For the breast-image classification mission, advanced engineering of natural image classification techniques and Artificial Intelligence techniques has been used to a large extent. The inclusion of digital image classification makes a second opinion of the doctor and the physicians, and it saves time for the doctors and doctors.

Despite the numerous publications on the classification of breast photos, very few review papers are available. We have placed particular focus on the breast image classification method of the Convolutionary Neural Network (CNN).

CSIAMSPID006: Stock Market Prediction Using Multiple Linear Regression

Shivani C K
RNS Institute of Technology, Bengaluru

Abstract: Stock of a corporation, is all of the shares into which ownership of the corporation is divided. A single share of the stock represents fractional ownership of the corporation in proportion to the total number of shares. The Stock Market refers to public markets that exist for issuing, buying, and selling stocks that trade on a stock exchange or over-the-counter. In this paper stock prices are predicted using machine learning algorithm, Multiple Linear Regression.

 Multiple regression is used to examine the relationship between several independent variables and a dependent variable. Analysis of stock prices of five companies namely Apple, Tesla, Amazon, Microsoft and Google have been undertaken and this paper, studies & documents the performance of TESLA INC.'s stock price using Multiple Linear Regression and gauged its performance using Root Mean Squared Error. The outcome is promising & efficient.

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CSIAMSPID007 :SURVEY ON ALPHA-NUMERIC CHARACTER RECOGNITION IN AUDIO/ TEXT-BASED CAPTCHA

Anoop P S, Akshitha B S, Aafreen Hussain, Prof.Sougandhika Narayan
K. S. Institute of Technology, Bengaluru

Abstract: CAPTCHAs are computer-generated tests that humans can pass but current computer systems cannot. CAPTCHAs provide a method for automatically distinguishing a human from a computer program, and therefore can protect Web services from abuse by so-called "bots." Most CAPTCHAs consist of distorted images, usually text, for which a user must provide some description. Unfortunately, visual CAPTCHAs limit access to the millions of visually impaired people using the Web. Audio CAPTCHAs were created to solve this accessibility issue. Briefly, audio CAPTCHAs are sound files which consist of human sound under heavy noise where the speaker pronounces a bunch of digits consecutively.

Generally, these sound files are composed of a set of words to be identified, layered on top of noise and some periodic and non-periodic noises to get difficult to recognize them with a program but not for a human listener. However, with the advancements in deep learning, it becomes easier to build deep learning models that can efficiently recognize text, image, and audio-based CAPTCHAs.

So, we gather numerous randomly generated captcha files to train our neural network model and test the model's ability to recognize characters from audio and image captcha files. The objective of this project is to identify alpha-numeric characters with the use of neural networks. We construct suitable neural network and train it suitably. Our model will be able to extract the characters one by one and map the target output for training purpose. Further, the performance of our model will be evaluated based on various performance metrics like accuracy, sensitivity, specificity, precision, recall.

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CSIAMSPID010: Dog Breed Identification with Products Classification and Assisted Services

Ruchitha G K, Spoorthi R, Varun Attiganal Venkatesh, Dr. Swathi K
K S Institute of Technology, Bengaluru

Abstract: The demand for having a pet at home has been increasing drastically over a few years. People are considering pets to be an important addition to the family. As a pet owner, one would want to do everything they can to care for their pet; this involves regular, everyday activities to ensure they stay happy and healthy. The population of pet dogs in India amounted to around 19.5 million in the year 2018. The population was forecast to reach over 31 million by the end of the year 2023. The growth in the number of pet dogs in India had led to an increase in pet food sales, from approximately 139 million U.S. dollars in 2014 to approximately 285 million dollars in 2018. The demand for having a pet at home has been increasing drastically over the past few years. People are considering pets to be an important addition to the family. Therefore, we aim to develop an application that recognizes the breed of the dog, serves as a platform that sells pets' food and accessories, helps the pet owner take appointments and consult the veterinary doctor during emergencies using the consultancy that we aim to provide, and serve as a portal to find lost pets.

CSIAMSPID013: Intuitive Perception –Lip Reading using Machine Learning

Roopashree N, Sai Sneha SV, Spoorthi V, Dr. Swathi K
K S Institute of Technology, Bengaluru

Abstract: Machine Learning is widely used to detect the movement of lips. It has been observed that the data generated through visual motion of mouth and corresponding audio are highly correlated. This fact has been exploited for lip reading and for improving speech recognition. We propose a system that uses CNN (Convolutional Neural Network) which is trained and used to detect the movement of lips and predict the words being spoken. This trained CNN will be able to detect the words that are spoken within the video and display it in a text format. The CNN may also rely on additional information provided by the context, knowledge of the language, and any residual hearing. We hope to learn whether the utilization of machine learning, more specifically the DNN (Deep Neural Network), could also be an appropriate candidate for solving the problem of lip reading. The main aim of our project is to accurately recognize the phrases being spoken through automated lip reading.

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CSIAMSPID014: A SURVEY ON MULTI OBJECT TRACKING

Preethik Laxman Shetty, Sathvik T N, Shravanakumar Bajantri, Shreesha M G, Shravya A R
Dayananda Sagar College of Engineering, Bengaluru

Abstract: Multiple Object Tracking (MOT) is an important problem in computer vision, which has gained huge popularity. It poses several challenging tasks, such as object detection, object tracking, occlusions handling, motion prediction, and object re-identification. The aim of this survey paper is to compile various techniques available for object tracking. To achieve that, we have analyzed several research papers related to multi-object Tracking and, based on their approaches, categorized them into Estimation algorithms, Deep learning networks, Processing mode, and Initialization method. Latest available datasets in this field have been explored.

CSIAMSPID015: ANALYSING THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE, MACHINE LEARNING AND DATA ANALYTICS IN HEALTHCARE: A SURVEY

Shreya BalasubramanyaRaju, Neha N, Dr.Naidila Sadashiv
JSS Academy of Technical Education, Bengaluru.

Abstract :There has been widespread adoption of Artificial Intelligence (AI)/ Machine Learning (ML) techniques in recent years due to their advancing success in a variety of healthcare applications. Explainable AI (XAI) is a method, which can be used by AI-based systems to evaluate and diagnose health data. Healthcare firms are assessing and utilizing the growth of AI/ML in the development of the medical field. Therefore, aiding in decision making, implementing, and endorsing its requirements. In healthcare applications, large volumes of data in diverse formats must be treated with importance. Machine learning algorithms are well adapted for this form of data and analysis. This paper aims to critically analyze the implementation of AI/ML in the healthcare industry with efficient data handling.

CSIAMSPID016:ANIMAL INTRUSION DETECTION USING ML

Roshini R, Varshitha S, Sindhu M, Sneha C.R, Surakshitha M
K.S Institute of Technology, Bengaluru.

Abstract: In places with high population and human mobility, intrusion of wildlife is lethal for humans as well as the animals. Due to the diverse nature of movement and physical sizes of wild animals, it is a challenging task to track these animals or perform surveillance. As a solution to this issue, this paper proposes a system that can help in identification of intrusion of wild animals at agricultural farms by means of Machine Learning and alert the farmers by sending alert SMS .

Track 4(II): Data Analytics AI, ML & SE

CSIAMSPID018: DRIVER DROWSINESS DETECTION SYSTEM

Pavithra V, Ruchika Bhat, V Pushpa, Yaminisree T K
RNS Institute of Technology, Bengaluru

Abstract: Drowsiness detection is a safety technology that can prevent accidents that are caused by drivers who fell asleep while driving. The objective of this project is to build a drowsiness detection system that will detect that a person's eyes are closed for a few seconds. This system will alert the driver when drowsiness is detected and hoping a few lives can be saved by reducing accidents occurred due to drowsiness.

CSIAMSPID019:VIRTUAL 3D TRIAL ROOM

Anusha A G, Deepika S H , Divya Yashaswi Kanney, Priyanka Hanni, Kushal Kumar B N
K S Institute of Technology, Bengaluru

Abstract: Presenting "Virtual 3D trial room", an application which uses CNN to produce a 3D model of a person and allows them to try on clothes virtually. Based on the parameters taken from the monocular video provided by the user as input, the 3D model is constructed. Dataset is used to train Machine Learning models to get almost accuracy during the construction of the 3D model. This created 3D model can try on clothes from the digital wardrobe which has clothes which have been converted to 3D models. Using MGN algorithm the perfect size of cloth for the individual can be predicted. The virtual 3d trial room has a wide range of applications; it can be used with the already existing online clothes shopping website to give users a better shopping experience. It would be extremely helpful during this COVID-19 pandemic and could be used later on as well.

CSIAMSPID020: Applications of robots in different fields

R G Manvitha, RNS Institute of Technology, Bengaluru

Abstract: Robots are used in many fields and are being developed to reduce gap cybernetic world and physical world . Robots move and transform materials similar to computer program transforms the data. Now or later Robotics and automation will find its application in every face of human life. They will soon sneak everywhere from gadgets to apparels and to our very own bodies. Hence it is the responsibility of engineering community to disseminate the knowledge about the future scope and application of Robotics.

CSIAMSPID021:Virtual Personal Assistant System - "Your Wish Is It's Command!"

Iram E Saba Guranni, Misbah Fatima Didagi
RNS Institute of Technology, Bengaluru

Abstract: Artificial intelligence has been an intellectual language but from the time of evolution of natural dialogue between human and machine, it has become a common language with endless possibilities that integrate the life of human the way they see it on the screen of their phone or computer. Personal computers and mobiles are going to talk back to their user in a way they want, from basic holiday planning to the most complex defense analytics. This artificial intelligence integrated with human intelligence is the future and that future is now. A Virtual Personal Assistant System is an application program that can understand natural language (audio and text) commands and perform tasks for the user. The importance and usage of the virtual assistant are growing exponentially worldwide. The new model of VPA's will be used to increase the interaction between humans and the machines by using different technologies, such as image recognition, speech recognition, the vast dialogue and conversational knowledge base, and the general knowledge base.

CSIAMSPID022: Detection of Melanoma Skin Cancer

Deekshitha R, Neha K, Lavanya V, Mounica M K L, Mrs. Beena K
K S Institute of Technology, Bengaluru

Abstract: Dermatology diseases are one of the biggest medical issues in 21st century due to its highly expensive and complex diagnosis. There are two types of skin cancer – Melanoma and Non -melanoma. Early detection of this fatal Melanoma skin disease increases the curing rate to 90%. In recent times Computer vision can play important role in Medical Image Diagnosis and it has been proved by many existing systems.

CSIAMSPID024: Necessity of Sentiment Analysis in Today's Busy Generation

Aditya D, Akshay P, R G Manvitha
RNS Institute of Technology, Bengaluru

Abstract: The paper focuses on sentiment analysis, which specifies the types depending on polarity and strategies. For this study sentiment analysis is divided into two parts basically and further three types on basis of polarity and three types based on strategies. It is effectively important to have a good knowledge of sentiment analysis. It is critical for categorization of sentiment polarity which is one of the fundamental problems of sentiment analysis. The process for polarity categorization is proposed with detailed process descriptions. The data used in this study are hotel review data collected from Kaggle and twitter API via developer account. In the end of the paper insight into our future work on sentiment analysis.

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CSIAMSPID025: Literature Survey on Text Extraction and Recognition

Sandesh N, Varun Reddy, Sai Kumar LS, Vinay Biradar, Mrs.Ranjitha K N
K.S Institute of Technology, Bengaluru

Abstract: Text recognition in images is an active field of research that aims to create a computer program with the ability to interpret text from images automatically. There is a huge demand nowadays to store the knowledge available on paper records in a machine-readable form for subsequent use. One convenient way to store data in the computer system from these paper documents is to first scan the documents and then store them as images. It is, however, very difficult to read the individual material and scan the contents of these documents line- by-line and word-by-word to reuse this information. The problems involved are: the characters' font characteristics in paper documents and the images' consistency. Owing to these difficulties, when reading them, machines are unable to identify the characters. Therefore, to perform document image analysis, there is a need for character recognition systems that convert paper documents into electronic formats.

CSIAMSPID026: PULSE RATE DETECTION

Harshitha V, Meghana C V, Nikita Kataari, Dr.Dayananda R B
K.S Institute of Technology , Bengaluru.

Abstract : Main objective of this paper to study Euler graph and it's various aspects in our real world. Now a day's Euler graph got height of achievement in many situations that occur in computer science, physical science, communication science, economics and many other areas can be analyzed by using techniques found in a relatively new area of mathematics. The graphs concern relationship with lines and points (nodes). The Euler graph can be used to represent almost any problem involving discrete arrangements of objects where concern is not with the internal properties of these objects but with relationship among them. To achieve objectives, I first study basic concepts of graph theory, after that I summarizes the methods that are adopted to find Euler path and Euler cycle

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Track 5: Android Web Security Systems

CSIAWSPID001 : Email Voice Assistant

Vybhavi J, Vishal M S, Supreetha R Kashyap, Shreyas R, Dr. Ram P Rustagi
K.S Institute of Technology, Bengaluru

Abstract: We propose to build a voice-based mailing system for the visually impaired to access an E-mail service effectively. This architecture will also reduce cognitive load taken by the blind to remember and type characters using a keyboard. It can also be utilized by anyone and everyone at their convenience.

It is designed as a web-based extension for the visually impaired which uses an Interactive voice response method so that it simplifies the user experience. This will enable everyone to control their mail accounts using their voice to perform operations like read, compose and send a mail, further it can be used to perform other useful tasks provided by Gmail.

CSIAWSPID003: Android based application for senior citizens

Pavani.M, Sindhu H S, Bharathi R, Varna M, Prof. Sneha Karamadi
K.S Institute of Technology, Bengaluru.

Abstract: To elevate the imperativeness and reinforce the health of elders, in order to provide an interactive service management platform to the elders a robust environment of numerous sensors are clubbed together to establish an intuitive platform. Aged people find problem while walking they face problems of obstacles in front of them which may be hazardous for them because of blurriness.

CSIAWSPID004: Automation in Security Systems

Jyotiprasad P Patil
KLS Gogte Institute of Technology, Belagavi

Abstract: Starting with the actual topic of Automation in Cyber Security, let us take a look at the definitions of cyber security Cyber Security refers to the group of processes, mechanisms, technologies, devices or software which are targeted towards protecting systems, networks or personal devices from unauthorized access or theft (physical or theft of data).

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CSIAWSPID005: BLOCKCHAIN-A PANACEA FOR HEALTHCARE CLOUD-BASED DATA SECURITY AND PRIVACY

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Abstract: The repeated administrations are a data concentrated space where a great deal of data is made, dissipated, set away, and got to step by step. For example, data is made when a patient encounters a couple of tests, and the data will require to be scattered to the radiographer and after that a specialist. The outcomes of the visit will be set away at the recuperating office, which ought to be gotten to at a later time by a specialist in another recuperating office inside the framework. Indisputably development can expect a basic occupation in enhancing the idea of thought for patients and possibly decline costs by more capably assigning resources in regards to workforce, equip, etc. For example, data captured fit as a fiddle is hard to get in structures costly to account, and being available when required. These troubles may incite helpful decisions not made with complete information, the prerequisite for repeated tests in view of missing information or data being secured in another recuperating focus at a substitute state or country (at the expenses of growing costs and weight for the patients, etc. On account of the possibility of the business, ensuring the security, security, and trustworthiness of human administrations data is crucial. This highlights the necessity for a sound moreover, secure data the board system.

CSIAWSPID006: Comparison of Kali Linux v/s Linux

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Abstract: So, the first question that pops up in the mind when the title is read is that what is Linux. So, Linux is a family of operating systems Unix-like based on the Linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds. The reason we chose this topic is that we were always fascinated by the branch of Cybersecurity. We were surprised to know that there were a group of people who were getting paid by organizations to hack into their websites or systems. Ethical Hacking is also known as Penetration testing (in-short Pen-testing). Penetration testing, also called pen testing or ethical hacking, is the practice of testing a computer system, network or web application to find security vulnerabilities that an attacker could exploit. Penetration testing can be automated with software applications or performed manually. Either way, the process involves gathering information about the target before the test, identifying possible entry points, attempting to break in -- either virtually or for real -- and reporting back the findings.

The main objective of penetration testing is to identify security weaknesses. Penetration testing can also be used to test an organization & security policy, its adherence to compliance requirements, its employees & security awareness and the organization & ability to identify and respond to security incidents.

CSIAWSPID007: LISTEN FOR VISION

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Abstract: In this world there are lakhs of people who are present with visual impairments. While some of them always have someone to guide them throughout, around 90% of the visually impaired people do not afford this luxury. Moreover any visually impaired person also would like to do his/her activities without needing someone to always help them out constantly. In this context we propose system in which an Android smart phone is used to help a blind user in obstacle detection and navigation. This project uses an Android smart phone that uses its camera to identify objects in surroundings and gives an audio output. The hearing ability of the user tries to fulfill his seeing ability. He also can use this app to navigate to unknown locations with routes being explained with the help of google maps. This application can be of great use to the visually impaired once learnt to use.

CSIAWSPID008: E-DEFENCE FOR PEOPLE SAFETY

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Abstract: Everyday in our society we come across so many issues like medical emergencies, accidents, kidnaps and many. where in people especially girls are into serious problem .This made us think about an app which presents an alert system for problem detection using common commercially available electronic device to both detect the problem and alert authorities.

CSIAWSPID009: REMOTE ACCESS

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Abstract: An Android Mobile Application that provides an easy way to access your phone's contacts, helps users change the sound profile of your phone(silent to normal), tracks the location of the mobile, and enables users to lock the phone remotely just through a simple SMS without Internet Connectivity.

CSIAWSPID010: e-Book Reselling Store: Set Aside your Time and Cash

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Abstract: Used book shopping has been a latest thing in the present stream. The way toward selling and purchasing the used book is by one way or another lead to time and energy wastage. The motivation behind this paper is to give arrangement through Online Second-hand Bookshop System. The client section incorporates purchaser, dealer, and donator.

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CSIAWSPID011 : *Voice Based E-Prescription- A System for Appointment Booking, Prescribing & EHR*

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Abstract - We all know that we are going through tuff times due to COVID-19 and this has made the fact of meeting anyone in person difficult. People in remote areas have difficulty traveling to a clinic. But as of now, we all know that most of the consultations are done online / over the phone, which results in miscommunication of the medicines prescribed. Also if the patient forgets the medicine name, dosage, he /she has to keep contacting the doctor again and again. Our idea mainly focuses on eliminating these errors and helping the doctors generate prescriptions by voice commands and send the same to the patient as SMS/PDF.

CSIAWSPID012: Cryptography in Computer Networks

Sunaina Nayak,   K.S. Institute of Technology, Bengaluru

Abstract*:* The paper deals with how cryptography plays a vital role in network security. Cryptography is where security engineering meets mathematics. During the last several decades and even today, data security has become a main concern for anyone connected to the web technologies as the internet having reached a level that merges with our day to day lives. Here comes the requirement of securing our data by ways of Cryptography. In order to gain this level of security in networks, various methods and processes have been developed and modified. Cryptography can be performed through various techniques and protects users by providing functionality for the encryption of data and authentication of other users.

CSIAWSPID013: Detection of Fake and Clone Accounts on Twitter

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 Abstract: Today, Online Social Network (OSN) has become an integral part of many people's lives. Many activities such as communication, promotion, advertisement, news, agenda creation are done through online social networks. But, some malicious accounts on social networking sites are creating dangerous security problems to the genuine users. Twitter is one such social networking service which is popular among the social network users but also has fake and clone accounts which is a threat to the users. Cloning of user profiles is one serious threat, where duplicate profiles of already existing users are created and then is misused for damaging the identity of the original profile owner. Fake account creation is the creation of an account in the name of a person or a company which does not really exist on social media, to carry out malicious activities. Therefore detection of such malicious accounts is very much necessary.

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CSIAWSPID014: Web-interaction without keyboard and mouse

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Abstract: Nearly 20% of people of the world are suffering from various disabilities, many of them are blind or unable to use their hands effectively. The voice recognition systems provide a significant help to them in those particular cases. So that they can interact with different web-sites without any difficulties by operating through voice input.

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