



SRM

INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

ICIOT2020

17th to 21st February 2020
SRM Institute of Science and Technology
Kattankulathur, India

Second International Conference on Internet of Things
Faculty of Engineering and Technology
Department of Computer Science and Engineering

BOOK OF ABSTRACTS

ICIOT2020

17th to 21st February 2020

**SRM Institute of Science and Technology
Kattankulathur, India**

Second International Conference on Internet of Things

Department of Computer Science and Engineering

BOOK OF ABSTRACTS

Edited by

**Dr.B.Amutha
Professor & Head**

**Dr.R.S.Ponmagal
Associate Professor**

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ABSTRACTS	

Welcome to Second ICIOT2020

The Department of Computer Science and Engineering of SRM Institute of Science and Technology, Chennai, India is conducting the Second edition of International Conference on Internet of Things (ICIoT 2020) from February 17th to 21st February 2020 in the Kattankulathur campus, Chennai. The conference aims to provide an outstanding opportunity for both academic and industrial communities to address new trends and challenges, emerging technologies and progress in standards on topics relevant to today's fast moving areas of Internet of Things. It also provides a platform for the discussion of new results in the field of Internet of things. The Conference will have different themes for each day and each theme contains different thought-provoking sessions. The first three days will focus on IoT in Computer Science and Information Technology domains. The fourth day will focus on panel discussion on Perspectives on IoT which includes Government initiatives like Digital India, Smart Cities, where in top bureaucrats from various departments will deliberate on the themes. Researchers, Faculty, students and Practitioners will be presenting their findings and ideas during the Paper presentation session on all the five days. We have nearly 2000 students in final Year School of Computing including UG, PG, and Research Scholars. The conference provides an opportunity for them to present their final year capstone projects as research paper. All the accepted and presented papers are planned to get published in SCOPUS indexed journals. We have received 300 papers including authors from countries like, China, USA, Kuwait, etc. The conference is inaugurated on 17th February 2020 with the dignitaries from SRM IST, USA, Canada, Russia and Kuwait. The conference Proceedings in the form of book of abstracts is released in the inaugural Function.

**Dr.R.S.Ponmagal
Organizing Secretary, ICIOT2020**

Prof. SANDEEP SANCHETI Ph.D (UK), FIEE, FIE(I), MIEEE
Vice Chancellor
&
Ex - President - Association of Indian Universities, New Delhi



MESSAGE

I am happy to note that the Department of Computer Science and Engineering, SRMIST is organizing an International Conference on Internet of Things (ICIOT 2020) from February 17 – 21, 2020. The current research trends such as Internet of Things has evolved due to convergence of multiple technologies, including ubiquitous wireless communication, real time analytics, machine learning, commodity sensors and embedded systems. Pervasive connectivity, smart devices and demand for data testify that IoT will continue to grow by leaps and bounds. Computing power is dropping in price while new sensors are being developed and incorporated into everyday objects, and as people buy into IoT technology, economies of scale lend themselves to the creation of more data-centric businesses and applications. Instrumenting and connecting devices has massive potential to deliver a social and economic value. However, there is need for a coordinated effort when rolling out the next generation of self-reporting paradigms.

I am sure that the conference will provide the right platform to establish a network among researchers from various parts of the world and lead to new innovative strategies in the field of Internet of Things.

I wish the conference a grand success.

A handwritten signature in blue ink that reads "Sandeep".

Dr. Sandeep Sancheti



MESSAGE

I am happy to note that the Department of Computer Science and Engineering, SRMIST is organizing an International Conference on Internet of Things (ICIOT 2020) from 17th to 21stFebruary 2020. I wish the conference to provide an outstanding opportunity for both academic and industrial communities to address new trends and challenges, emerging technologies and progress in standards on topics relevant to today's fast moving areas of Internet of Things. As the conference have different themes and sessions to share their thoughts and ideas and surely this will helps the students/ Academicians/ industry persons to wider their knowledge based on the theme of the conference. We have invited several resource persons from various countries in various domains which also help every presenter / Attendee to provide opportunity and ideas. Thus, I also wish that the conference surely will provide as a suitable platform for everyone in the field of Internet of things.

I wish the conference a grand success.

Yours sincerely,



Registrar

SRM Institute of Science and Technology
SRM Nagar, Kattankulathur-603 203.
Chengalpattu Dist., Tamil Nadu, India.



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Prof. C. Muthamizhchelvan, Ph.D.
Director - Faculty of Engineering and Technology

Message

In the technology world, one word that is recently scaling new heights and creating a benchmark is the "Internet of Things (IoT)". Functionally, this advancement is driving towards connecting every object to the internet generating volumes data for better analysis and control of the systems through internet technologies.

The Department of Computer Science and Engineering coming up with the 2nd Edition of the International Conference on Internet of Things (ICIoT 2020) 17th-21st February 2020, is a continuing effort of the SRM IST in creating and dissipating knowledge in the cutting edge technology domains.

This conference will bring in the best of the minds from Industry and Research Centers to the academic community for collaborating and convening their intellectual ideas. The event will pave a way for the budding researchers to identify newer challenges that they can focus on their research works and create a worthy knowledge to the scientific community across the globe.

I appreciate the arduous efforts of the organizing team for organizing this event.

Wish this event creates a collaboration ecosystem and makes an impact in enabling technology to economical and socially relevant applications.



(Prof. C. Muthamizhchelvan)

DIRECTOR
Faculty of Engineering & Technology
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SRM Nagar, Kattankulathur - 603 203
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Dr. B. AMUTHA., B.E., M.C.A., M.E., PhD.
Professor & Head
Dept. of Computer Science and Engineering.



Conference Chair Message

The Department of Computer Science and Engineering laid stones of success on the essence of academic pursuit and excellence. Excellence in any work can be achieved with the utmost dedication, hard work, and perseverance. We, at CSE Department, have made this assertion, our motto and our way of life in every single activity in the campus.

Research and development form the backbone of our curriculum and syllabus for the department of Computer Science and Engineering. The faculty and students are engaged in various path-breaking innovative research activities all throughout the year. Every School of our University organizes conferences and seminars frequently on contemporary and relevant topics in order to facilitate research in the areas of Bio-Informatics, Digital Signal Processing, Software Defined Networking, Wireless Sensor Networks, Computer Networking, Artificial Intelligence and Machine learning, Service-oriented Architecture, Cyber-physical Systems, Internet of Things, Data Mining and Data Warehousing etc. which leads to necessary metamorphosis in the academia.

The School of Computer Science and Engineering, right from its inception, has been active in research and innovation and has set up an ambient academic environment for its students and research scholars. With the commitment of highly qualified and efficient staff, the Department endeavours vigorously to make a mark in the field of research and development. The second version of International Conference on Internet of Things (ICIOT2020) organized by the Department of Computer Science and Engineering is another venture to provide a platform for academicians — teachers, students, research scholars, and industry personnel — globally to discuss on present-day trends and innovations in the field of IoT. All the quality papers presented in the conference will be submitted for inclusion in Scopus Indexed Journals.

I wish the conference all the very best and urge all participants to brainstorm on the various thrust areas of the conference. I also wish all of you a happy stay in our campus and look forward to your participation in multiple events in the campus in the near future.


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Dr.Paul Manuel Professor, Information Science Department,College of Computing Sciences & Engineering (CCSE) Kuwait University

Dr.Raghavendra Belur Jana,Skolkovo Institute of Science and Technology,Skoltech, Department of Civil Engineering, Moscow, Russia

Dr. James Stanger,Chief Technology Evangelist, CompTIA, Washington state

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AUTOMATED KIOSK FOR MONITORING VITAL PARAMETERS

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Automated kiosk for monitoring vital parameters is designed to get healthcare access on ‘go’. It is a simple system to monitor vital parameters without need of trained medical personnel. It is portable and consumes low power and easy access to user medical history. The vital parameters can be monitored by touch-based system with user in upright position. Thus, then hardware occupies less space so it can be easily installed in remote areas with ease. It will have a facility for monitoring Body weight, height, BMI, ECG, cuff-less non-invasive systolic and diastolic blood pressure, respiration rate, Spo2 and body temperature. Ultrasound sensors are used for height and respiration parameters. The cuff less pulse transit time technique is employed for calculating systolic and diastolic pressure.

An Automated kiosk System (AKS) is a product to monitor the vital parameters, A routine monitoring of vital parameters without need for the trained operator, All touch based sensors embedded in the product can monitor the parameters, The routine health check-up can be made available to customers at their place without need for them to travel. This can be installed in rural community centres, gyms and public places. It monitors height, weight, BMI, respiration rate, Spo2 level, blood pressure and Electrocardiography (ECG). In addition to that feedback on the status of parameters are also given to patients. Interconnecting the data of patient and send to their respective health id's using Bluetooth. It acquires less space, low power and mainly it does not have any medical technicians. The product mainly constraints for the people who are in defence remote areas, villages so that the people easily know their vital parameters.

Keywords: *Electrocardiogram, Body weight, height, BMI, cuff-less non-invasive systolic and diastolic blood pressure, respiration rate, Spo2 Vital parameters, less space.*

TaaS Environment Task Scheduling Algorithms of Cloud Computing

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Task scheduling possess a vital part in testing environment of cloud computing. Cloud Scheduling is very much important resources for executing the task, with considering the parameters of static and dynamic. The resourceful scheduling is purely count on time of completing the task and the cost of execution .As the challenging assignment we assumed that the Scheduling process of task and resources allocation in a virtualized manner. In this paper we are going to do the analyzing about algorithms in TaaS for their correctness, practicality, parameters description, advantages etc.

Keywords— Cloud Computing, Cloud Architecture, Task Scheduling, Dynamic task execution, TaaS, Optimal Scheduling

IoT BASED ENERGY METER AND FAULT IDENTIFICATION SYSTEM

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In this overview, Microcontroller, Energy Sensor, Signal molding device and IoT package are intended for this. In view of our management framework, the initial 100 energy unit is not determined by the energy meter used to determine the power consumed unit in the hub of the shopper. Precisely with the aid of the IoT board, the devoured energy in the user node core. This framework travels the primary power using the relay circuit with the help of the driver relay via the IOT server kept in the EB office and alerts the shopper using the buzzer. The energy meter monitoring system is constrained as planned by viewing the energy meter through remote medium. In the hour of power failure deception or some other objections, we can educate through the cloud from the EB office to the consumer node. With the support of the keypad, which is placed in the user node, a time frame, no use of resources will be informed through the IoT app.

Keywords: Automatic Meter Reading (AMR), PIC controller, Current GSM module, Real Time Clock (RTC)

Decentralized Applications of Block Chain Technology to Enhance Traditional Systems

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Blockchain technology is a distributed and decentralized public ledger. It inherently possesses the characteristics of security and traceability, creating a new backbone for the internet. It is a series of immutable time stamped records with no central authority. Transactions or data are stored in the form of blocks that are cryptographically sealed and chained to one other. We seek to survey blockchain's outstanding advantages of security and decentralized distribution in a wide-range of applications along with its authentication mechanisms. In the survey a brief pre-history outlining the creation of the first blockchain application of Bitcoin by Satoshi Nakamoto is described followed by a description of the working, characteristics and types of the distributed ledger technology integrated with the cryptographic hashing and transactional process. The exemplary versatility of blockchain technology can be recognized in the various applications that it can be deployed in. Some of these applications include healthcare, agriculture, smart vehicles, water distribution systems, identity management, electronic voting, e-commerce, e-learning, energy industry, user generated content etc. They currently face problems in the areas of information sharing, data storage, protection and integrity, having a centralized organization, authentication issues etc. The survey shows that blockchain has the potential to enhance these systems by providing solutions to these issues that are addressed by the inherent features of blockchain and therein revolutionize the world of business.

Keywords—applications, authentication, bitcoin, blockchain, platforms, survey

IOT Based Cable Fault Detector

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Underground cables are susceptible to a big variety of faults due to underground conditions, wear and tear, rodents etc. Diagnosing fault source is difficult and full cable should be taken out from the ground to check and fix faults. The project work is intended to detect the location of fault in underground cable lines from the base station in km using an Atmega8 controller. To locate a fault in the cable, the cable must be tested for any faults. This prototype uses the simple concept of Ohms law. The current would change depending upon the length of fault of the cable. In the urban areas, the electrical cables are mainly underground instead of overhead lines. Whenever there is any fault in the underground cable it is difficult to detect the exact location where the fault is and for the process of repairing that particular cable. The proposed system finds the exact location of the fault.

Keywords—Cable Fault Detector, Fault distant finder, IOT.

TRACING PRODUCTS IN A SUPPLY CHAIN USING BLOCKCHAIN

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Blockchain makes way for applications to become transparent, secure and ensures that the database is immutable and distributed. Although Block-chain has recently become famous for its application in crypto-currencies, this paper discusses all types of blockchain focusing on the private and permissioned version of the technology. Block-chain technologies are finding applications in various areas such as Supply chains, banking, healthcare and Internet of Things. By making use of timestamps we can utilise some major features offered by the Blockchain technology. Like, lastingness, distributed amongst its peers, by making use of these attributes, one can be assured transactions can be made sturdier and more transparent. By design, the Block-chain enforces transparency, security, authenticity, and auditability. When it comes to supply chain management, it could make it easier for big businesses to track all the verifiable details for every single order on the supply chain. As an incorruptible digital ledger, Block-chain could effectively store records for every product. In conclusion, Block-chain has the potential to drive cost-saving efficiencies and enhance the consumer's experience through transparency, traceability, and tradeability in various fields of applications like Supply chain management. Nodes of the Block-chain network can generate keys, hashes and transactions blocks. This paper attempts to address the necessity of a central authority which can only initiate the requests and changes which will not destroy the perks offered by the decentralization feature of Block-chain technology but further helps the users use it even more efficiently. The visible parameters of the block-chain network are handled by an admin, but before they are applied a majority of nodes have to audit.

Keywords — Blockchain, Supply chain management, transactions, distributed ledger, traceability, transparency.

DRIVER DROWSINESS SAFETY SYSTEM

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Driver's drowsiness is one of the significant reasons for car crashes, especially for drivers of enormous vehicles, (for example trucks) because of delayed driving periods and fatigue in working conditions. We propose a vision-based drowsiness identification framework for transport driver observing, which is simple and adaptable for arrangement in transports and enormous vehicles. The framework comprises of modules of face recognition, eye identification, eye transparency estimation, drowsiness measure level of eyelid conclusion estimation, and drowsiness level grouping. The experimental outcomes show the benefits of the framework on precision and power for the difficult circumstances when a camera of a diagonal review point to the driver's face is utilized for driving state observation.

Keywords - Drowsiness, Eyelid conclusion Estimation , Eye Transparency Estimation, Face Recognition

ENERGY PREDICTION SYSTEM USING INTERNET OF THINGS

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Electrical Energy Prediction is a very important task for an industry. Electricity load and price forecasting is fundamental in decision making mechanisms for many energy companies. Wrong estimation of cost leading to over-contracting and under contracting leading to buying and selling the power can lead to loss of finance and there are cases of companies going bankrupt. Due to these reasons, energy predictions are an important feature for safe keeping the company's future. The purpose of this work is to create a energy prediction system using machine learning algorithms such as LSTM, KNN etc. and predict the abnormalities and energy consumption of a building or an company.

Keywords— Prediction, machine learning, KNN, LSTM.

MULTI-DISEASE PREDICTION AND CLASSIFICATION BASED ON MEDICAL HISTORY

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This project intents to identify a person's risk of different Chronic Disease based on their Medical History and Genetic Predispositions. In this the user is able to enter their own medical records and family history and on the basis of such with help of Classification method on the basis on medical data we are able to predict presence of diseases. The project contains major diseases such as Chronic Kidney Disease, Cardiovascular Disease, Liver Disease. By providing an easy detection it prevents further worsening of the disease and their side effects if caught in earlier stages. It will be built using KNN and Inverse frequency Algorithm. The entire framework will be deployed on an online framework build on HTML5 and hosted on a Live Server in real time.

KEYWORDS: *Chronic Kidney Disease (CKD), Prediction, Classification, Data set.*

ENHANCING SEED SELECTION AND PROVIDING GUIDANCE FOR CULTIVATION USING RANDOM FOREST TECHNIQUE

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Crop analysis is a very challenging job because for a selection of a crop multifarious parameters are to be taken under consideration. Also crop analysis require a prediction of which crop is suitable which needs a great accuracy as there are numerous things to be taken into account like soil type, PH of soil, nutrient content of soil, elevation of land, weather of the area, etc. Several algorithms have been devised from time to time but each of the methods differs in their own way. The algorithms, which are discussed, are K-Means Algorithm, K-Nearest Neighbour Algorithm, Naïve Bayes Classifier, Decision Tree, Regression Model, etc. Data mining techniques can overcome this challenging job.

KEYWORDS: *Random Forest technique, Prediction, Classification, Data set.*

BULLY IDENTIFICATION WITH MACHINE LEARNING ALGORITHMS

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The purpose of this paper is to identify the bullies via informed surveys, using data from students of colleges and schools and take the results to concerned authority or guardian and list out ways to eradicate it. This paper adopts data mining techniques of the concerned survey results and converts into knowledge. Following a five-step process of Data Selection, Pre-Processing/Cleaning, Transformation, Data Mining, and Interpretation/Evaluation. Along with this, the paper utilizes three unique approaches, Internal Labelling, Synthetic Labelling, and Data Programming. To identify these data patterns effectively, incorporation of data validation and classification using suitable Machine Learning algorithms is utilized.

A SURVEY ON PREDICTING AIR TRAFFIC DELAY WITH ENSEMBLE MODEL

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The air traffic control systems worldwide are still depending on the systems and algorithms and systems which were used before 40 years. Now a day's air traffic control system became challenging because of the growth in aviation industry, the main problem is not with the algorithms but with the constant growth in number of flights from one place to another place. So in this paper machine learning algorithms are used such as neural networks, linear regression, support vector machine and random forest for better prediction of the delay. As observe neural networks gives better prediction strategy for delay of flight. Here ensemble model is used for combining more than one algorithm for better prediction.

SURAKSHA- STUDENT SAFETY SYSTEM USING IOT

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SURAKSHA is a potential student safety system which enhances student safety using IOT. In current times, with so much technology available there has yet to be innovation in the field of student safety. So, this system aims to bring that innovation. The main feature of this proposed system is to enable the parents and teachers to establish the whereabouts of the student in real-time while sitting back at home. The key difference between our system and the existing systems is that, our system is equipped with Logistic Regression Algorithm. This algorithm is used to determine whether the child is really in danger. The algorithm takes into account the students' distance from school/home. Using these as parameters, an accurate prediction is made. If the student is really in danger, the parent is notified and parallelly has the option to inform the police. This system shuns unnecessary pestering the parents with alerts when their child is far from being in danger. Thus, this system significantly improves on the features of earlier systems and sidesteps the faults present in the earlier systems making SURAKSHA a smart and efficient student safety system.

Keywords— Key components - GPS module, Arduino ide, Firebase Style - Times new Roman.

SYNTHETIC DATA GENERATION STUDY

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Synthetic data is an analytically generated data that has the potential to act as a proxy to the real data. It tends to imitate data regarding parameters set by user, avoiding methodical measurements, hence making it anonymous. There are many advantages of synthetic data. It helps businesses of every size to work on models powered by deep data sets. This democratizes machine learning. This process is very effective in cost reduction and increases efficiency. We can create the data on the basis of demands rather than waiting on occurrence of the event that makes the data set. One important advantage of synthetic data is that it can be used to generate all possible cases of a situation so that the machine learns all dimensions of the problem. We can also avoid privacy issues when using synthetic data. Synthetic data does face one major disadvantage. The reaction of the generator model to new data. When new data is added to the original set, current techniques tend to overlook the new behaviour shown by the dataset. This is due to the fact that the model doesn't involve the new addition to the set. A workaround to this issue is to generate a new model with the dataset combining the original dataset and the new additions. But this is time consuming. This paper investigates the mechanics of different techniques of synthetic data generation and proposes an efficient method to address the issue of data generation due to dataset update.

Keywords - synthetic data; machine learning; incremental learning

SURVEY ON DETECTING BARS IN GALAXIES USING CONVOLUTIONAL NEURAL NETWORKS

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Astronomical data is experiencing the explosion of data because of the reasons that good telescopes are built that can have the images of the entire portion of sky. Also the sensitivity of detectors has been great which leads to images getting dense with pixels. So the aim will be to use good algorithms to explore the universe and the galaxies in it. This paper surveys the best technique to detect bars in the galaxies, especially the convolution neural networks which are best for image classification. The images of galaxies can be achieved from Sloan digital sky survey which has a sufficient amount of barred and unbarred galaxies. The paper aims at getting the top accuracy in detecting bars. The ability with which implementation of CNN is done requires deep understanding of underlying mathematics for probability, statistics and linear algebra to start with. Various sophisticated machine learning frameworks are available to implement complex deep neural network architectures. The network which is called as the deep CNN is scaled in such a manner that it can handle large data. The biggest challenge is always the good representative sample set which is overcome by the using the image augmentation which artificially expands the size in the required dataset with also creation of the modified version of the different images present in the dataset. The paper focuses on the work done by various researchers in this field and aims to get the best results in the process of identifying bars in the galaxies.

Keywords- image processing, neural networks, galaxies, barred galaxies, binary classification

DETECTING HATE SPEECH ON SOCIAL MEDIA USING MACHINE LEARNING

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As times have progressed, the usage of social media has exponentially increased. Private and public opinions about a wide assortment of subjects are communicated and spread ceaselessly by means of various online social media platforms. Twitter is one of such platforms that has gained a lot of popularity. Twitter offers organizations and individual users a fast and effective way to advertise and communicate their ideas and thoughts without much hassle. Thus, analyzing customers' perspectives toward day to day events is crucial to success in the market place. Building up a program for notion examination is a way to deal with be utilized to computationally gauge people's perceptions. This project applies sentiment analysis to a dataset containing thousands of tweets relating to a given string that is searched, all using R libraries. Searched strings could include hashtags, usernames, specific words etc. Using the processed output, we are able to determine the sentiments of people regarding any trending topic. Tweets are extracted using R and the data is wrangled by removing emoticons and URLs. Lexical Analysis is used to predict the meaning of tweets and subsequently infer the opinion graphically through ggplots, histogram, pie chart and tables.

Keywords –Detection, Clustering, Classification, Sentiments, Tweets.

ROUND ROBIN LOAD BALANCER FOR THE THREE NODE SWARM CLUSTER FOR HOSTING A SERVICE ON THE CLOUD

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In this project we will be creating an application which uses socket programming for communication and all of the data/metadata are saved in mongo DB. We will be taking this application and hosting it on a 3 node swarm cluster. This cluster will be using Docker swarm technology to create a private network through which each of the nodes can talk to each other along a specified RPC port. So, based on this concept we will be making a Docker container which will handle the execution of multiple processes which lead to working of different projects concurrently. Docker is a PC program that performs working framework level virtualization otherwise called containerization.

DROWSINESS DETECTION SYSTEM

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Melbourne is one of the liveliest cities in the world. It has a well efficient transport system, supported by a vast network of trams. Therefore, the mental health and stress level of the tram drivers plays a crucial role in the safety of the passengers. The issue of fatigue and drowsiness in the tram drivers are mostly due to their work-time and the most common thing is that the drowsiness occurs during the work time itself. This drowsiness is a risk for everyone including those who are not travelling in the tram. The current system that is used to prevent the drivers from falling sleeping is called the deadlock system. In this system the driver keeps his foot on a pedal at all times. Whenever the driver lifts his foot from the pedal the tram stops moving. Considering the technologies that are currently implemented in the vehicles seems to be insufficient. More over the driver gets uncomfortable when he keeps his foot onto the lever for a long time during long working hours. We have used OpenCV in python to create a program which monitors the eyes of a person and ensures that they keep the eyes open. The programming language python is chosen because of its explicit libraries and functions also due to the extensive device support exists for this language. The developed algorithm uses python libraries to detect any abnormality in the time interval between blinks and the extent of openness of the driver's eyes. When an abnormality is detected the alarm system present in the car goes off to wake up the driver or advise him to take a break from driving.

COMPARISON OF ALGORITHMS USING CRIME DATA ANALYSIS AND VISUALISATION

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Data is defined as facts and statistics collected together for reference or analysis. This project aims to analyse the given dataset and visualise the same to map the districts where crime is highest and lowest and also to map the intensity of each crime that has been committed. Many algorithms can be used to complete the mapping efficiently, out of which efficient programs are chosen and compared to determine the best algorithm to use for future tools and research. Each crime has a different weight set to it by the police department and hence we will find some areas to be less intense in the number of crimes committed but will be considered dangerous due to crime intensity. The police can easily sort data and post warnings if needed for each area and it also helps in catching criminals who commit crimes repeatedly. This visualisation hopes to give a clearer picture to the public as well as the authorities to reduce and concentrate on specific crimes in specific areas.

MAINTENANCE OF HEALTH RECORDS USING BLOCKCHAIN TECHNOLOGY

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The current world scenario has been carved by humans with technology as their tool. The basic idea behind creation of all these technologies lays the desire of human beings to put it more accurately the greed for a better life. Among the millions of technology that surrounds us one of the most important and crucial is the internet. Since it's starting in 1983 internet has grown to standards that no one even thought existed. In the current world internet has become a major influencing factor of our lives. Internet has found use not only in our professional life but also in our personal life. It is impossible to sum it up. But just like any other ant case there are certain loopholes in this technology as well. When all our data is on the internet it is within reach of almost everybody and of someone with a malicious intent gets there hand on this data there is nothing much we can do in order to prevent this. If this data falls into the wrong hands and is used for the wrong reason it can cause wide spread problems. In order to just understand this data's strength considers the facebook debacle. Facebook was caught responsible for selling its users data to a third party with the name of Cambridge Analytics. This leakage of data had a direct effect on Brexit and US Presidential elections the two most important world political events in the recent years. This was due the users being unaware on what and where there data was. Due to this any many similar cases there has been the need to make the internet more transparent and secure when handling such data. Thus in the year 2009 with the launch of bitcoin by Satoshi Nakamoto blockchain was introduced into the picture. Blockchain is a distributed network that lays emphasis on security, validity and transparency. Since then blockchain has become one of the hottest technology in the market. The blockchain became a even more of a talking point after the launch of Ethereum in the year 2015. After this a number of well known technology firms have taken a keen interest in the new technology. There has been a lot of research put into the idea of implementing blockchain in a number of other fields. This report basically looks into technology behind blockchain and how blockchain can be used in order to revolutionize the medical field.

A SURVEY ON THE NON-INVASIVE BLOOD GLUCOSE MONITORING SYSTEMS

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Diabetes is a genuinely horrific disease, characterized by increased glucose (sugar) level in the bloodstream. Diabetes can be classified into Type 1 diabetes (Insulin dependent) and Type 2 diabetes (Insulin resistant). The existing and more popular blood glucose monitoring devices require blood samples to be collected for testing, which can be painful and susceptible to infections. To ease up the process, there is always a hunt for a non-invasive blood glucose monitoring system. There has been few systems that can monitor blood glucose in a non-invasive manner, involving different technologies like light based methods, ultrasonic and electromagnetic waves, brain computer interface. Apart from the above-mentioned methodologies, this survey paper proposes with a brief introduction, a non-invasive blood glucose monitoring system using brain computer interface, currently under research.

Key terms: Diabetes, ultrasonic, electromagnetic, brain computer interface

STUDY ON DEVELOPMENT OF SOLUTION REGARDING DROWSINESS DETECTION AND RESPECTIVE SOLUTION

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This paper depicts an eye following framework for languor identification of a driver. It depends on use of Viola Jones calculation and Percentage of Eyelid Closure (PERCLOS). The framework cautions the driver if the sluggishness file surpasses a pre- determined level

ANOMALY DETECTION AND ATTRIBUTION IN NETWORK WITH TEMPORALLY CORRELATED TRAFFIC

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Anomalies in data network are patterns that deviate from the ‘normal’ expected behavior of the network. These patterns might consist of suspicious behaviors such as network scans for vulnerable ports/services, attacks such as TCP SYN flooding, DDoS amplification attacks, etc., or they could also be the result of spurious traffic caused by network failures. Anomaly detection has many applications in various areas of research. These include change detection in sensor networks, location spoofing detection in IoT networks, fraud detection, etc. In this work, we concentrate on anomalies in data network, but the model and algorithms we develop can be applied to other domains as well. There are numerous works that have attempted to solve the problem of network anomaly detection. In the past works, a number of features with granularities varying from packets to flows to sessions have been considered (see for a recent analysis). Similarly, a number of models have been used to analyze these features with the aim of detecting anomalies in network traffic (see Section II). In our work here, we concentrate on temporally correlated features of network traffic which we model via a Markov Chain, with the aim of studying the feasibility and performance of such a model in detecting network anomalies. In the process, we choose as our working example one important feature—state transitions of TCP (Transmission Control Protocol) flows—for modeling traffic data. TCP state transitions for normal flows are based on TCP’s Finite State Machine (FSM) which evolves stochastically according to a first order Markov Chain.

HYBRID APPLICATION BASED SKIN LESION ANALYSER USING DEEP NEURAL NETWORKS

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Skin cancer with more than 5 million cases reported every year. Early detection can increase the probability of survival. In recent study it was shown neural networks outperform medical board certified doctors in classifying lesions as cancerous. We intend to build a whole system encompassing Image capturing processing it by neural net, sending the response back to the device and formulating a report for the user. We intent to use CNNs to classify the image of skin lesion into 7 categories of cancerous lesions : Melanoma, Benign Keratosis, Actinic Keratoses, Dermatofibroma, Vascular skin lesion and Basal Cell Carcinoma. Our goal is to make the system easily usable by untrained users and make detecting skin cancer easy with higher efficiency.

IMAGE COLOURIZATION USING CONVOLUTIONAL NEURAL NETWORKS

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If done manually the process of colorizing an image is a dreary task that is very much less human error free. The approaches used earlier were either based on pixel scanning or scribble based. The pixel based scanning is comparatively expensive while the scribble based approach was more manually done. These approaches assume a heavy interaction with the intended grayscale image and also require a large amount of training instances. Through this project we intend to deliver an approach through which the task of automatic image colorization will be performed using least amount of associated images using the concepts of Machine Learning.

INTELLIGENT TRANSPORTATION SYSTEMS USING BIG DATA ANALYTICS

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Intelligent Transportation Systems are set to innovate and revolutionize the way current transportation systems work by creating safer and more efficient transportation methods. ITS generates large, rapidly increasing volumes of real time data from various sources which proves difficult to process and store. Real time data is very important for various traffic related applications and to solve various problems in day to day traffic scenarios. Innovative big data techniques are emerging rapidly in the field of ITS and are solving the problems which conventional systems cannot. In this paper, first we will touch upon the characteristic features of Big Data and Big Data analytics. Then the various Big Data platforms are discussed along with the data collection methods employed by Big Data Analytics. Finally, the various Big Data techniques which are popularly used for various ITS implementations are discussed.

Keywords—applications, big data analytics, features of big data machine learning algorithms, survey

AVOIDING RISK MITIGATION OF VENDOR LOCK-IN'S IN CLOUD COMPUTING PLATFORM USING FUZZY RULE BASED SYSTEMS

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The process of optimizing the vendor based relationships in a modern environment is a tedious task among the cloud service provider end. Vendor lock-in is a major concern in the cloud service platform to mitigate the applications to the user centric applications. There will be a loss of control over the data and infrastructure for distinct business applications. The complete access control services are not guaranteed for security, uptime and managing the overall infrastructure in the cloud platform. Depending on the single vendor will lead to trivial situations for monitoring and maintaining the server, networked devices and user service level management. For avoiding these issues, the proposed work will bring the solution for avoiding the risk mitigation of vendor lock-ins with fuzzy based access system. The fuzzy system will analyze the certainty and uncertainty elements for domain and application specific process. From the proposed work the occurrences of vendor lock-in based risk mitigation will be reduced.

Keywords: Cloud service provider, Vendor lock-in, Cloud vendor, Risk mitigation, Fuzzy crisp set, Cloud server, Virtual machine, Security control. *Keywords—*applications, big data analytics, features of big data machine learning algorithms, survey

DEVELOPMENT OF PATIENT SPECIFIC 3D PRINTED MANDIBLE IMPLANT

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Medical 3D Printing has a variety of uses in dentistry, oral surgery and dental lab works. Modern dentistry plays a major role in 3D printing technology. The designing of a patient-specific mandible implant for cancer and fracture cases is based on the patient's medical imaging data and 3D printing. This study procedure uses the patient CT image data in DICOM format (Digital imaging and communication medicine). The patient's corrupted mandible is extracted from the skull CT scan. The anatomical reconstruction approaches are used for the extraction of the final 3D printed image. The final design is printed and then the stress analysis for different polymers is made to provide efficiency. Analyzing the suitable polymer involves biting and chewing. The maximum values of von mises stress were measured. Thus, the reconstructed mandible was close to the mechanical behavior of the normal bone. This 3D printed mandible implant is patient-specific compared to the existing system.

Keywords: 3D Printing, CT image, mandible implant, dentistry, cancer

STOCK PREDICTION USING TWITTER SENTIMENT ANALYSIS

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Prediction and analysis of stock market data are very important in today's day and age. Since the economic interactions are too complex for shallow neural networks this paper implements Long Short Term Memory (LSTM) neural networks. LSTM is chosen as it helps to vectorize the data and thus give better predictions. This paper agrees that longer horizon predictions eg. a month are more useful than shorter horizon eg. a day. A very important factor is the mood of the people. A person's emotions have the power to influence the stock market. Sentiment analysis on twitter is used to find a correlation between the future of the stock and the general public's mood. Our paper works on comparing the sentiment analysis and the predicted stock value and showing that the two are rather similar and that people's emotions affects the future of the stock prices.

Keywords: Long short term memory, recurrent neural network, Stock markets, Sentiment analysis, Twitter.

SURVEY OF CHAOS-BASED IMAGE ENCRYPTION ALGORITHMS

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Security of image is one of the vital aspects in the big and still growing world of image encryption as a bulk of data is being transferred over the internet that includes text, audio, videos, images, and various other kinds. Images are now largely used in and are a part of daily life in various aspects, therefore security of image is a very important. Encryption of images is the best way to protect confidentiality of images over a public media. Also, it is an approach to guarantee that images with high security are incorporated in numerous fields, for example, medical science, military etc. This medium is prone to attacks and subsequently efficient encryption mechanisms are need for secure communication. Cryptography provides the capability of protecting the confidential information from unauthorized and unknown access. It's vital to transmit reliable data. Present day cryptography gives basic mechanisms to verify and protect information. Until now, encryption methodology has been growing rapidly and a large number of encryption strategies have been utilized to preserve confidential data image from unknown attacks or unauthorized users or access. In this paper, an overview of various image encryption methods which are based on chaos has been examined and compared from which researchers can get a perspective of suitable methods that can be used.

Keywords: Chaos, Encryption, Confusion, Diffusion

RATING PREDICTOR FOR SHOWS ON WEB BASED PLATFORM

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The broad range of entertainment shows streaming over various web based platforms are rated by viewers based on their personal experience, hence providing an introspect to other viewers who have not watched the show. The proposed work aims to predict an optimal rating for an upcoming show based on various static parameters associated with the show. This will help the viewers to gain an insight on the show and aid their decision of whether or not to watch the show by making use of multiple regression model of predictive analytics. The result of the proposed work is a general indicator of the show's mathematically calculated ratings. These ratings are a factor of comparison with the total viewership at that day and time throughout a country or a wider geographical area. The proposed work is hence, aimed to have a good efficiency and to predict a near accurate rating.

Keywords:*Data Mining, Predictive Analytics, Multiple Regression, Collaborative Filtering, Svm, Naïve Method, Chi Square Method, Movies, Television Shows*

Spider-Monkey Optimization for Secure-aware Routing in Networks

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Security is always a major concern of any organization. An intrusion detection system (IDS) is necessary to detect the malicious activities over a network or single system. An ID is the most useful approach to safe guard single system and the computer networks from various malicious activities. There are two categories of intrusion detection system is available host based intrusion detection system (HIDS) and network based intrusion detection system (NIDS). NIDS is mainly used to detect the malicious activates in the network. HIDS is used for detecting attacks in the single system. For an intruder, it is difficult to compromise a system being protected with Host Based Intrusion Detection System. HIDS continuously monitors the system audit and event logs to safe guard the execution of programs. Design a host based intrusion detection system with less false alarm rate is major challenge. The proposed scheme of anomaly based host intrusion detection method is to detect the malicious activities based on the analysis of system calls with less false alarm rate. An increase in detection rate in the existing anomaly host-based intrusion detection systems results in increased in false alarm rate. This leads to the development of a new method of host-based intrusion detection system with high detection rate and less false alarm rate. The gathered system calls sequences are analyzed to determine the activities are normal or malicious. It is very difficult to identify the malicious activity by analyzing huge log file. Here system is designed, which uses Harmony search based K-Means clustering approach for detecting the intrusion in system calls.

Keywords: *Spider-Monkey optimization, Routing, intrusion detection, deep belief network, neural network.*

AN EFFECTIVE DATA MINING TECHNIQUE FOR THE MULTI-CLASS PROTEIN SEQUENCE CLASSIFICATION

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Sub cellular localization or solubility and various other properties can be predicted from the features and sequences extracted from Amino acid sequences, using classifier algorithms. Various packages are needed to be installed and data needs to be converted into different formats even though there are a lot of feature extraction and classifier construction software tools available because the application is not straight forward. The objective of this project is to make the sequence based classification techniques quick and explorative for biologists. ProtS is a software application run for finding sequence-based properties of proteins in predetermined classes. In a single integrated, interactive environment it gives data importation, sequence-based property calculation and solution along with data classifier construction with testing.

FLIGHT TRAJECTORY PREDICTION FOR AIR TRAFFIC MANAGEMENT

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With the ever-increasing volume of air traffic, strategic air traffic flow is a prerequisite requirement for effective functioning and transit of flights. Air traffic management is a term in the aviation industry that encompasses all the systems that work towards assisting an aircraft in the course of its departure, transit, and landing. The airspace management is to maneuver through the dangerous and fatal airspace sectors to make a safe flight experience for the on-board passengers and the aircraft itself. The objective concerns with identifying the hazardous areas in the airspace and avoiding them in the due course of the flight trajectory. The points of trajectory are predicted and computation with the help of continuously changing weather information. Clustering is used on the historical flight trajectories to classify the flight traffic into major groups based on similarity measures. Using these clusters, the Intent-based model predicts flight path and suggests an alternative path in case of the presence of a weather anomaly in the original flight path.

Optimization of Feature Loss for Image Enhancement

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Image-transformation problem is a problem in which an input image is transformed to an output image. In most of the recent methods, a feed-forward neural network is defined which utilizes per-pixel loss between the output image and the ground truth image. In this paper we have showcased that high-quality images can be generated by defining a feature-loss function which is based on high-level perceptual features extracted from retrained convolutional networks. We have combined both the approaches that have been formerly mentioned and have proposed a feature-loss function for training a feed-forward neural network capable of image transformation tasks. We have compared our method with that of an optimization based approach, similar to the one utilized in Generative Adversarial Networks (GANs) and our method produced visually appealing results whilst fully capturing the intricate details of the object in the image.

Keywords: *image transformation, super-resolution, deep-learning, convolutional neural networks.*

OPTIMAL FEATURE SELECTION AND DEEP LEARNING ENSEMBLES METHOD FOR EMOTION RECOGNITION USING EEG SIGNALS

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Recognition of a human's continuous emotional states in real time plays an important role in machine emotional intelligence and human-machine interaction. Existing real-time emotion recognition systems use stimuli with low ecological validity (e.g., picture, sound) to elicit emotions and to recognise only valence and arousal. To overcome these limitations, in this paper, we construct a standardised database of 16 emotional film clips that were selected from over one thousand film excerpts. Based on emotional categories that are induced by these film clips, we propose a real-time movie-induced emotion recognition system for identifying an individual's emotional states through the analysis of brain waves. Thirty participants took part in this study and watched 16 standardised film clips that characterise real-life emotional experiences and target seven discrete emotions and neutrality. Our system uses a 2-s window and a 50 percent overlap between two consecutive windows to segment the EEG signals. Emotional states, including not only the valence and arousal dimensions but also similar discrete emotions in the valence-arousal coordinate space, are predicted in each window. Our real-time system achieves an overall accuracy of 92.26 percent in recognising high-arousal and valenced emotions from neutrality and 86.63 percent in recognising positive from negative emotions. Moreover, our system classifies three positive emotions (joy, amusement, tenderness) with an average of 86.43 percent accuracy and four negative emotions (anger, disgust, fear, sadness) with an average of 65.09 percent accuracy. These results

demonstrate the advantage over the existing state-of-the-art real-time emotion recognition systems from EEG signals in terms of classification accuracy and the ability to recognise similar discrete emotions that are close in the valence-arousal coordinate space.

A SMART HEALTHCARE SYSTEM FOR SICKNESS ANALYSIS BASED ON MACHINE LEARNING THROUGH BIG DATA

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In restorative administrations system, using a Database is a striking methodology for securing information. In standard database structures, on occasion considering nearness of massive data it isn't possible to fulfill the customer's criteria and to outfit them with the right data required to choose a decision by them. In any case, the examination precision is decreased when the idea of remedial data is insufficient. Additionally, remarkable territories show intriguing characteristics of certain regional disorders, which may exploit the figure of disease scenes. With tremendous data improvement biomedical and restorative administrations systems, precise examination of helpful data benefits early sickness area, getting thought, and system organizations. In huge data accumulate human administrations records from various source and using AI figuring's for practical conjecture of ailments in illness visit systems.

Keywords: *prediction ,prevention and diagonise*

A FOOD RECIPE RECOMMENDATION BASED ON THE CONCEPT OF THE EFFICIENT FOOD USAGE

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As of late, the substance volume and number of clients of the Web have expanded significantly. This enormous measure of information has caused a data over-burden issue, which prevents the capacity of a client to locate the significant information at the ideal time. In this way, the essential assignment of proposal frameworks is to dissect information so as to offer clients recommendations for comparable information. Proposals which utilize the center substance are known as substance based suggestion or substance sifting, and suggestions which use legitimately the client input are known as community oriented separating. This proposal exhibits the structure, usage, testing, and assessment of a recommender framework inside the formula area, where different methodologies for delivering suggestions are used. All the more explicitly, this postulation talks about methodologies got from essential suggestion calculations, yet tweaked to exploit explicit information accessible in the formula area. The proposed approaches for suggesting plans utilize formula fixings and audits. We first form fixing vectors for the two plans and clients (in light of plans they have evaluated exceptionally), and prescribe new plans to clients dependent on the likeness among client and formula fixing vectors. Essentially, we construct formula and client vectors dependent on formula survey message, and suggest new plans dependent on the similitude among client and formula audit vectors. Finally, we study a half and half methodology, where the two fixings and surveys are utilized together. Our proposed approaches are tried over a current dataset slithered from recipes.com. Test results show that the formula fixings are more educational than

the audit content for making suggestions. Besides, when utilizing fixings and surveys together, the outcomes are superior to utilizing only the audits, yet more regrettable than utilizing only the fixings, proposing that to utilize audits, the survey jargon needs better sifting.

Keywords: *prediction ,prevention and diagonalise*

LOAN APPROVAL SYSTEM THROUGH CUSTOMER SEGMENTATION USING BIG DATA ANALYTICS AND MACHINE LEARNING

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Data Science and Big Data Analytics, is a field that assesses, and extricates data from excessively huge informational collections that are complex to be otherwise managed by conventional information handling applications and programming. Among all businesses, the financial area has probably the biggest consumption of big data and information science strategies. It is relied upon to change the large credit and personal loan industry in the banking sector, in view of the bits of knowledge and insights it generates about borrowers who are hard to endorse. The aim for this project study is to evaluate the credit's default likelihood and risks through studying the authentic dataset obtained from the financial organizations with various customer attribute variables and then ordering the people into one of two classes: (a) Uncertain/Risky (b) Eligible/ seeming to satisfy the repayment in full. The strategy towards making this characterization requires understanding the consumers and their past record as a consumer through data exploration and correlations between the important features and loan status followed by applying various machine learning algorithms like Random Forest, Logistic Regression, SVM to estimate the accuracy levels of the trained dataset model to process future loans. The project can quicken the credit creation cycle, mitigate risks, and render loan approval quickly. Along these lines, analytics can quickly survey the dangers of giving a credit and help settle on the choice of sanctioning a specific request for loan in a capable way.

EFFICIENT IMPLEMENTATION OF VISUAL SIMULTANEOUS LOCALIZATION AND MAPPING (VSLAM) FOR REAL TIME AUTONOMOUS NAVIGATION

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Simultaneous Localization and Mapping algorithms have gained significant importance in the field of autonomous navigation in recent years. Visual Simultaneous Localization and Mapping makes use of visual data from camera, lidar and other optical sensors to construct a map and localize. Simultaneous Localization and Mapping algorithms usually involve heavy computation and require powerful GPUs. Current implementations of Visual Simultaneous Localization and Mapping use expensive hardware like lidar, laser scanners, RGB-D cameras, etc. to calculate depth information and reconstruct the 3D environment. The efficient visual simultaneous localization and mapping algorithm

proposed in this paper can be run on low power hardware like Raspberry Pi. Inexpensive hardware like stereo cameras are used to collect environment information and processed by computationally efficient algorithms. This makes it possible to run real time simultaneous localization and mapping on low power and lowcost devices.

Keywords: *visual SLAM, raspberry pi, autonomous navigation, computer vision, 3D reconstruction*

INTEGRATION OF ACCIDENT DETECTION WITH LOCATION TRACKING

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The increase of the population with in the cities and the number of vehicles tends to increase in congestion on roads and accidents. The lack of quick medical service on road accidents is the main reason of death. In such situation, automatic accident detection can help to save the loss of life. In this paper, a prototype is designed for an automatic accident detection using Vehicular AdhocNetwork(VANET) and Internet of Things(IOT). This application is used to detect the accident is happened or not by using sensors like vibration sensor and smoke sensor. If accident is taken place it means frequency of vibration is high. So based on frequencies of vibration we will able to detect whether the vehicle is met with accident or not and also we uses moke sensor to detect if there is any fire accident is happen for vehicle. If accident is happened, buzzer start storing. There is a button placed to stop the buzzer. If the buzzer is ringing for more than 10 seconds mean SMS is sent to then earest3 hospitals using IOT.

Keywords: *Arduino, Vibration sensor, Smoke sensor, Ultrasonic Sensor, GPS module.*

FAKE USER IDENTIFICATION USING BIG DATA ANALYSIS AND MACHINE LEARNING

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Social network accounts have gained a count of more than a billion users. Social sites like Twitter, Facebook, Instagram and more interact daily with users causing a huge impact and occasional repercussions on daily life. A crucial part of our life is plagued by online impersonation and fake accounts. Every year millions of accounts are declared fake, according to the ‘Community Standards Enforcement Report’, and force closed. In this project, we are proposing a model that could be used to classify an account as fake or genuine. Our model uses Support Vector Machine as a classifier as it can process a large amount of datasets at once, eliminating the need to manually evaluate each account. The community of concern to us here is Fake Accounts and our problem can be said to be a classification or a clustering problem. Being an automatic detection method, it can be applied easily on online social networks having millions of profiles, which are tedious to be examined manually. We hope that the study will be useful for researchers.

CANCER THERAPY USING BIG DATA ANALYTICS AND GEOINFORMATIC APPROACH

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Cancer is becoming one of the biggest threats to human beings around the globe. As observed, millions and millions of people die because of it making it the most common disease. India is one of those countries where over a million people are diagnosed with cancer every year. Some of them survive as they get the appropriate treatment but they are even less than 30% of the people diagnosed. This shows that we lack the capability to diagnose and prevent the disease from spreading. Keeping these facts in mind, the paper focuses on providing better healthcare options by applying Data Mining and Big Data Analytics techniques. This ensures that everyone in the country gets the right treatment for cancer in the right place. We also focus on funds sufficiency by the government to the people who cannot afford treatment. Likewise, life expectancy can also be predicted based on the causes and treatments for a particular city. Additionally, a recommendation will further be there for giving the location of the new hospitals that can be made for cancer treatment. However, a different Geo-Informatic approach is also used to compare and predict the mortality rates based on the affected areas. India is a developing country and it must reach its highest potential by eradicating such diseases.

TRAFFIC DENSITY CALCULATION USING SINGLE SHOT DETECTOR

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Existing systems to check vehicles from a street picture have relied on both unsophisticated element building and rule-based calculations, for example, background subtraction where the camera position will be fixed and different procedures include carefully assembled highlight extraction and sliding window based article recognition. These require many foreordained ways to deal with, distinguish and track vehicles yet at the same time it will in general be slower with regards to continuous video handling. This paper gives a managed learning technique that requires no such element designing. Single Shot Detector (SSD) was utilized to check the quantity of vehicles on a street section dependent on video

pictures. The present procedure doesn't view an individual vehicle as an article to be identified independently; rather, it by and large checks the quantity of vehicles as a human would. The proposed framework uses a forefront calculation to deliver best in class precision. The proposed framework will be sufficiently quick to distinguish and perceive various items even at 30 fps. Thus the quantity of vehicles is tallied and the density is determined, dependent on that the sign choices will be taken.

Keywords: *SSD(Single Shot Detector), traffic density, frames per second(fps)*

COMPARATIVE ANALYSIS OF GUI BASED SPAM MESSAGE CLASSIFIER USING MACHINE LEARNING APPROACH

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Generally, Spam emails are messages randomly sent to multiple addressees by all sorts of groups, mostly lazy advertisers and phishing criminals who wish to lead people to phishing sites. Spam detection is a significant application of Machine Learning on the internet today. A machine learning model can be trained to distinguish between spam and non-spam (ham) emails. So, the aim is to analyze machine learning algorithms to identify the best techniques to use in content-based spam filtering. Current spam techniques could be paired to increase effectiveness and to investigate machine learning-based techniques for spam mail forecasting by prediction results in the best accuracy. The analysis by supervised machine learning to capture information like variable identification, univariate analysis, bivariate and multivariate analysis, missing value treatments, data validation, data cleaning/preparing, and data visualization is done on the entire dataset. This analysis will provide a comprehensive guide to sensitivity analysis of model parameters about performance in the prediction of spam mails by accuracy calculation. Additionally, the comparison of the performance of various machine learning algorithms from the given dataset with an evaluation of classification report, sensitivity, specificity, confusion matrix, and different other score metrics is performed to create a better picture of this evaluation. The result will show that the effectiveness of the proposed machine learning algorithm technique can be compared with the best accuracy with precision, Recall, and F1 Score.

STUDY AND ANALYSIS OF OBSESSIVE-COMPULSIVE DISORDER USING BIG DATA AND VISUALIZATION TECHNIQUES

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Mental or psychological disorders are a serious problem to be resolved as they affect emotional stability and security for both the person and the environment. Although psychological disorders are said to have specific root factors and traits, the conventional way of diagnosis is to establish a connection between the behavior of the person and the events that occur in their past or daily lives. Obsessive Compulsive Disorder (OCD) is a psychological disorder in which a person has uncontrollable, reoccurring thoughts called obsessions, and behaviors referred to as compulsions that he or she feels the need to perform repeatedly numerous times. If this disorder is not identified and resolved at the earliest, the victim might develop the tendency to commit suicide or inflict self-harm. Hence, this paper is aimed towards discovering common symptoms and trends as well as the cognitive pathways influenced by various factors that lead to this disorder. This survey investigates recent research works and conducts a

comprehensive analysis of the work on mental big data, particularly as related to OCD and its repercussions. It focuses on the all-round big data processing which comprises of OCD data pre-processing, big data tools along with visualization techniques. It attempts to integrate statistical techniques with medical diagnosis in order to characterize the several elements that contribute to the mental transformation that a person undergoes. The result of this survey is expected to illustrate the standard ways that could enhance our understanding the treatment most favorable for each and every patient.

Keywords: Mental Disorders, Obsessive Compulsive Disorder (OCD), Obsessions, Compulsions, CYBOCS, Adolescent mental health

PREDICTIVE ANALYSIS OF EMPLOYEE CHURN USING DATA MINING ALGORITHMS

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The industry and service sectors are booming in India. With over a billion people, India is the second most populated country after China. This has led to many youths of India unemployed for long period of time. Hence, many organizations decide to lower the pay-scale in order to reduce unemployability in India. This comes with another problem i.e. increase in employee churn rate, with people seeking better opportunities, pay-scale and added benefits.

Keywords: Machine learning; Employee attrition; Support vector machine; random forest; K nearest neighbours; Feature ranking; Feature selection.

CLOUD COMPUTING PRIVACY AND SECURITY: SURVEY

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Cloud computing is one of the developing technologies in data storage and communication. The cloud provides various utilities for business application, networking and storage, etc. Even though, privacy and security have been an extensive challenge in the cloud computing. This survey paper explored the models of cloud computing, and illustrated the related potential privacy and security issues. And also, how the issues have been engaged in the earlier literature has been widely reported. Finally, the current research and future of security in cloud has been analysed.

Keywords: Cloud computing, multi-tenancy, privacy, security, key management

NATURAL DISASTER AID SYSTEM USING IMAGE PROCESSING

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Natural Disasters sometime come with terrible consequences where those affected are subjected to depreciation of even the basic needs, be it connectivity using roads, be it electricity or be it water. The list has no end. All this takes toll especially on the victims of the disaster with lack of above stated essentials makes the reaching of help difficult. The proposed work acts as a single control unit for all solutions, bringing all the recovery control system under one umbrella, facilitating quick response to the disaster and recovery system. The web application has two modules, one for the user end and other for the administrator end. It always strives to bring all the possible means for the same under single umbrella. Methodologies used include IBM Watson for image processing, TensorFlow for training model, and Anaconda for package management and deployment and HTML, CSS, JavaScript, JQuery and PHP for Web based GUI. With an everlasting desire to attain perfection, we are trying to expand our sphere. The goal set involves bringing of financial aid, in collaboration with the banks and also food supplies from local vendors for the victims, in near future, along with solving the above mentioned problems. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and distortion during processing. Since images are defined over two dimensions (perhaps more) digital image processing may be modeled in the form of multidimensional systems. The IBM Watson Visual Recognition service uses deep learning algorithms to analyze images for scenes, objects, and other content. The response includes keywords that provide information about the content.

Keywords: *Natural Disaster, Digital image processing, Noise and distortion, IBM Watson, Deep Learning*

SURVEY PAPER ON VARIOUS TECHNIQUES OF BITCOIN PRICE PREDICTION USING MACHINE LEARNING

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Bitcoin is a global virtual currency. It is globally used as an investment and as a means of currency for buying and selling products and services in exchange of fractions or numbers of bitcoins. Bitcoin is not owned by a single authority or organization but rather it is decentralized. Bitcoins can be sold, bought or traded on platforms called “bitcoin exchanges”. Exchanges permit individuals to buy/trade/sell Bitcoins using a variety of currencies using a P2P (i.e. peer-to-peer) network. This paper

describes different Machine Learning techniques for predicting bitcoin prices. Dataset has been collected from various live websites that provide real time data consisting of various attributes of bitcoin price. Times series model of the live data has been developed. The aim of this paper is to provide a survey of various Machine Learning algorithms to predict the price of bitcoin. The underlying motivation for implementing Machine Learning techniques to accurately forecast time series data. Machine Learning techniques have better proved to outplay non-linear techniques including neural network-based algorithms. The ultimate goal is to provide an insight into the applications of various predictive models that can be employed to predict bitcoin prices.

Keywords: *Bitcoin, Machine Learning Techniques*

SURVEY PAPER ON IMPACT OF EARTHQUAKE USING DEEP NEURAL NETWORK

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This paper describes the use of Deep Learning Techniques to predict the impact of earthquake of a place. In this research project we are going to study and find out various impacts of earthquake using Deep Neural Network and the prediction of the impact value of earthquake will be used to alert the earthquake prone area about its resource loss. We will use histographic data of the earthquake happening and remote sensing data(Satellite Images) as input to our deep neural network, preprocess the data, train the neural network, adjust the weights and test the model with test data. The desired output will be classes of damage whether it is high or low.

Keywords:*Deep learning techniques, Recurrent Neural Network, animation tools, friction dampers, structural dynamic responses, hazard characterization, model calibration, impact assessment.*

ENDPOINT CYBER SECURITY SOLUTION AND ALGORITHM

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In omnipresent big network frameworks (or architecture) security threats, data redundancy, slow network access etc. are usual problems specially in banking sectors. Presently, all the banks in India are maintaining distributed architectures of their different respective data centres. This framework results in many problems like - high cost of software licensing, poor remote access, high data redundancy, etc. All these troubles lead to a many ordeal for the endpoint of the architecture. Endpoints are the last nodes for the network topology in a system architecture. In the banking sector online clients' node are the endpoints. These endpoints leverage online net banking transactions that must be protected from all sorts of cyber-attacks and threats. This research report aims to design a hybrid virtual architecture that will not only solve this issue but also create a specialized DR (Disaster Recovery) that deracinate "Server chain breakdown effect (or attack)" i.e. one of the orthodox method of load balancing in distributed networks.

In addition, the report leverages to build an algorithm to deplete the vulnerabilities of APT (Advance persistent threats).

MY THERAPIST: A COGNITIVE APPROACH TOWARDS NATURAL LANGUAGE PROCESSING

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Talk therapy (which is also known as psychotherapy) is an important and growing field to a range of treatment for depression, bipolar disorder or other mood disorders. A good therapist can help you cope with your feelings and adapt to your sentiments by problem solving and changing behavior patterns that may contribute to disorder's symptoms. While Conversational AI is the study of techniques and strategies for software agents that can engage in natural conversational interactions with humans. As of late, many conversational interfacesassistants such as Amazon Alexa, Google Assistant, Apple's Siri, J.A.R.V.I.S and others have become a focal point in both academic and industrial research because of their rapid market uptake and rapidly increasing range and scope of capabilities. The first generation of these Conversational assistants have been focused on short and taskoriented dialog rather than longer free-form conversations that occur naturally in social, emotional and professional human interaction. Achieving sustained, coherent and engaging dialog are the next frontiers for conversational AI. Adding to these features of a conversational AI using NLP,introduction of a conversational therapeutic assistant which will help in these various procedures of psychotherapy and treatment of these mental disorders using Cognitive behavioral therapy(CBT) which is a short-term therapy technique approach that can help people find new ways to behave by changing their thought patterns.

Keywords: *Cognitive Behavioral Therapy(CBT); Natural Language Processing(NLP); Conversational Artificial Intelligence(AI)*

IOT BASED ADAPTIVE NEURO FUZZY SYSTEM FOR SPEED CONTROL OF DC SHUNT MOTORS

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The main aim of this work is to control the speed of the DC shunt motor by conventional laboratory method and adaptive neuro-fuzzy based methods. The speed of the DC shunt motor can be varied by varying armature voltage with field current constant and varying the field current with armature

voltage constant. It is found that the speed is said to increase with increase in armature voltage for which the graph is a linear in case of armature controlled method. Whereas for the field control method the speed is said to increase with decrease in field current with armature voltage to be constant. The stated condition is cross verified by plotting the graphs for conventional and proposed Adaptive Neuro-Fuzzy System (ANFIS). The proposed hi-tech arrangement is evaluated and validated through experimentation results which are made available on the cloud service for so that the entire system coordination so that the speed is monitored and controlled online by Internet of Things (IoT).

Keywords:*DC shunt motor, Internet of Things, Adaptive neuro-fuzzy system, Armature control and Field control.*

DIFFERENT MACHINE LEARNING MODELS BASED HEART DISEASE PREDICTION

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Heart related disease is one of the crucial reasons for high amount of people's death in the whole countries and it's considered as life forbidding disorder, in addition to that this effect takes place in whole earth. Heart disease will affect the early stage of age peoples also. Thus, heart related disease creates the more challenges to people living and identify the causes and detection step is more important in nowadays. So, we need to develop of automatic system with more accurate and reliable for early detection of heart disease. For this reason, various machine learning models are developed to predict heart related disease; different medical data package is processed to automatic analysis with get more accuracy. In this paper, we discuss the available machine learning models such as KNN, SVM, DT and RF algorithms for prognosis of heart disease with high certitude, precision and recall.

Keywords: *Heart Disease prediction, KNN, SVM, Decision Tree, Random Forest, machine learning.*

EXPLORATION OF FILE FRAGMENTATION TECHNIQUE IN CLOUD DATA CENTER

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Information storage was a difficult task in the history of human mankind and before the modernized computer system exists. Then the data was stored in the different file system in the separate location which was later combined together into one unit called as the database. The different type of the database are available like relational database, object oriented database. Client server architecture was introduced where the single system was centralized. Distribution database is that where the database is divided into the smaller parts and divided among all the different network sites. The fragmented framework plays the important role in providing the security to the data present on the various database. In this paper there are different types of techniques present which are horizontal fragmentation, vertical fragmentation and hybrid fragmentation were analyzed

Keyword: *distributed database, fragmentation, centralized database*

OBJECT DETECTION AND CLASSIFICATION FOR AUTONOMOUS DRONES

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Detecting and classifying objects in a single frame which consists of several objects in a difficult task. With the advancement of deep learning techniques, the rate of accuracy has increased significantly. This paper aims to implement the state of the art custom algorithm for detection and classification of objects in a single frame with the goal of attaining high accuracy with a real time performance. The proposed system utilizes SSD architecture coupled with MobileNet to achieve maximum accuracy. The system will be fast enough to detect and recognize multiple objects even at 30 FPS.

Keywords: *SSD, FPS, MobileNet, TensorFlow*

COUNTERFEIT CURRENCY DETECTION USING RESOURCE EFFICIENT NEURAL NETWORKS

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One of the leading causes of economic instability is the large-scale counterfeiting of the paper currency notes. Several media reports bring to light the alarming cases and the humungous scales of currency counterfeiting and how this issue has become very serious now. They also report on how the Government is coping with these threats with new and stricter rules however counterfeiters adapt to the new rules in an alarmingly fast pace. Criminals continue to find a loophole in the system despite such strict security features. There have been impressive discoveries in the field of counterfeit currency, and this coupled with new age digital technology, counterfeiting is being fought well. However, it is impossible to track all counterfeit notes and impossible to have them checked at a short amount of time. Existing systems involve filing a case with the police, sending the documents for verification and waiting for the results to come. This method is based on Deep Learning, which has seen tremendous success in image classification tasks in recent times. This technique can help both people and machine in identifying a fake currency note in real time through an image of the same. Traditional Deep Learning algorithms require tremendous amount of compute power and storage and hence it is an expensive and elaborate

process. Our main goal is to make a faster and simpler mechanism to detect a counterfeit note that can be implemented in any random place like an ATM dispenser or an android application. The success of this application will greatly help the quick identification of the threat and help law enforcement in finding the source of the threat faster.

Keywords:*Counterfeit Currency, One-Shot Neural Networks, Deep Learning, Open CV.*

MIXED REALITY USAGE IN MEDICAL EDUCATION USING CLIENT SERVER MODEL

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With the click of button or a tap on the screen we could have the entire world at our hands but now it is possible to have it in front of our eyes. The technology is gradually advancing to change the hand-held devices to wearable devices. Medical Education has been in dire need of technologies which can replace the old school and expensive cadaver dissection but at the same time keep the precision intact. In this paper we aim to conduct an in-depth survey on the technologies that can help our future doctors to learn without jeopardizing accuracy and precision. Mixed Reality, Augmented Reality and Virtual Reality are the three technologies that can make this happen. We will review the technology extensively to reach the correct conclusion on whether it is the right source. We will also review the earlier models created in the field and in related fields to get an extensive overview. The paper shall be concluded with the best thought out potential techniques and methods for revolutionizing the education in the field of medical sciences.

Keywords: *Mixed Reality, Augmented Reality, Virtual Reality, Medical Education*

IDENTITY BASED DATA SHARING AND PROFILE MATCHING USING PROBABILISTIC PUBLIC KEY IN CLOUD

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Cloud technology is in high demand since the uses and their data are increasing massively day by day. It provides functionality for managing information data in a distributed and pervasive manner supporting several platforms. Data sharing and security issue is one of the main problem to the wide application of mobile health care, since health information is highly sensitive. Yet issues such as risks of privacy exposure, scalability in key management, flexible access and efficient uses revocation have remained the most important challenges toward achieving fine-grained. Cryptographically enforced data access control. In this paper we design a secure data transfer and profile matching scheme with probabilistic key encryption in equality test to reduce the size of public key which helps in reducing the

storage and also time efficient. Our probabilistic public key encryption scheme when implemented in a bilinear group, it is able to check whether two cipher texts are encrypted of the same message. Interestingly, in encryption or decryption procedure bilinear mapping is not required in PKE scheme unless when people want to do in equality test between two cipher texts that may be generated using different public keys. Moreover the profile matching mechanism based on PPKE with equality test(PPKEET) helps patient to find friends in a privacy preserving manner with generation of trapdoors and form social relationships according to the with. The security analysis and experimental results showed that our scheme is protecting the data and providing right medication in MHC in cloud.”

Keywords: *profile matching, data security, encryption, health management*

SURVEY PAPER ON SPEECH ANALYSIS BASES ON IMAGE INFORMATION FROM LIP MOVEMENT

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Hearing disability is a widespread problem around the world, with just over 5% of the world's population suffers from this condition, i.e. About 466 million people. Hearing problems are a commonly occurring impairment among children and adults, often resulting in temporary or permanent loss. It prevents them from hearing completely and/or partially and hence they are often unable to engage in conversation with other people. AVSR(Audio visual speech recognition) systems are often used to help people with said problems and provide a suitable solution. Lip reading is a technique used to help people with hearing disabilities engage in conversation. This is done by tracking the lip movement of a speaker and then analysing it by which the system will be able to differentiate the 11 different types of phonemes and classify it to the respective viseme group. Speech analysis starts with pre-processing the image which needs to be analysed. The image is read, resized and denoised. Following that colour markers are placed on each lip with 3 on the upper and the 3 on the lower. Following that the lip reading takes place in which the positions of the coloured markers are recorded with their x and y co-ordinate marks. The project is repeated a number of times for each particular viseme and the average is recorded and taken as the value which is stored. This would help people with hearing impairment practice pronunciations without an instructor.

Key Words: *ASVR, Viseme, Phoneme, Pre-processing*

DEEP LEARNING APPROACH OVER HEALTH SENSOR DATA FOR SUITABILITY ASSESSMENT SYSTEM

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This paper aims to design a Suitability Assessment System (SAS) to precisely investigate the sensor output acquired from patients under medical management. It is estimated to collect data installed from diverse varieties of sensors in the body of the patients to accumulate dissimilar parameters. Since the

output of the sensors comprises of diverse measures of health care parameters from numerous patients and they are from different health care establishments, the system outputs are classified under Big Data. Deep learning concept is proposed to evaluate the disorders of the patients which form the core part of the SAS. A disorder exploration unit is employed to independently trace the disorders using deep learning which forms the basis for multi-layer preparation with health sensor networks at the bottom most layers which constitute the SAS. Tailored prediction models such as Multi-Layer Perceptron based on Deep learning algorithm to analyze the unstructured health sensor data are proposed. The proposed method offers the prediction accuracy of 96.4% with a convergent speed rapider than the MLP based MDRP algorithm.

Keywords: *Deep Learning, Big data, Multi-Layer Perceptron, Suitability Assessment System*

STROKE RISK ANALYSIS AND INTELLIGENT NUTRITION SYSTEM

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In a country with over 5.5% of its population (nearly 73 million) living in conditions of extreme poverty, healthcare seems to be a luxury rather than an easily accessible necessity. Despite the hard times India is also second in the world, after China, to have the most number of internet users [2]. Creating a self care healthcare tool that can be easily shared via the internet, which can be used to assess the factors that affect stroke health and employing an intelligent lifestyle system to provide nutritional and lifestyle changes to study Stroke Health in India is of utmost importance.

Key words: *stroke, health, tool, self-care, machine learning*

AIR QUALITY DETECTOR USING ARDUINO UNO

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Technology nowadays is getting smarter day by day because of the use of Internet of Things also known as IoT. Environment conservation is one of the most crucial and critical topics which desperately needs to be discussed and acted upon. Air Quality Index (AQI) is a scale of measuring the quality of air in the surrounding areas. The air quality detector leads us the knowledge of all harmful gases present in the air and the also informs about the concentration of such gases in PPM (Parts Per Million). This high concentration of particulate matter is smaller than a width of a human hair (70 microns). The gathered data is then sent to the software where it combines and presents the output in a graphical form for any

future references. This type of project leads to public awareness among the common people and helps them realize the great importance for environment conservation

ANOMALY DETECTION USING VIDEO SURVEILLANCE SYSTEM

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Recent progress in embedded processing has allowed vision-based systems to detect anomalies using neural networks during surveillance. These anomalies could include fire, flood and many other calamities that either occur naturally or unnaturally. Detection system is used for object behaviour analysis and explanation. It consists of the detection of static and moving objects, to understand the events that occur in the scene. Such methods, however, generally require more computational time and memory, limiting its implementation in surveillance networks. However, in this research paper, we suggest a cost-effective method for detecting anomalies for surveillance videos. Object detection is used in higher-level application to identify the area where objects are visible and the shape of objects in every frame. The model is fine-tuned to balance the efficiency and precision, taking into account the complexity of the target problem and the fire data. Experimental results on benchmark anomaly datasets reveal the effectiveness of the proposed framework and validate its suitability for anomaly detection compared to state-of - the-art methods in CCTV surveillance systems.

Keywords:*Anomaly Detection, Object Detection, Surveillance System*

TRAVEL ROUTE RECOMMENDATION SYSTEM USING USER KEYWORD SEARCH

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Travel and tourism is a field, which have been growing substantially overthe past few decades. The competitiveness in marketing and need of fulfilling customer experience in travel have given many opportunities for today's technological advancements to play a crucial role in it. Those technology aspects are Big Data and Data Mining.” “Data Mining uses technologies of statistics, mathematics, machine learning and artificial intelligence. It aimsto classify original, valid, useful, potentially and

understand correlations and patterns. Data mining with the help of Big Data - Hadoop can help analyze and derive information, which can increase the growth of industry and give accurate suggestion to customer. The reason of combining capabilities of Hadoop is it can handle all sorts of data such as Structured or Unstructured." "The main objective of this project also revolves around the same principle giving the best Customer Experience. By combining the power of Data Analytics of data mining, Big Data and programming capabilities of Java, this project focuses on building a customer centric Keyword Aware Travel Route Framework."

Keywords: *Travel and tourism, Big Data, Hadoop Data Mining, Structured Data, Unstructured Data LBSN, Keyword aware travel route.*

CREDIT CARD FRAUD PREDICTION SYSTEM USING MACHINE LEARNING ALGORITHMS

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In today's world, credit card is found to be one of the most commonly used system for online transactions due to its convenience of usage. However, this ease of usage comes with its own share of troubles. Recent statistics have found that global credit card fraud losses equaled to be \$1.48 billion in 2018. Increasing participation in online transactions raises fraudulent cases globally. This causes tremendous losses to users, banks and merchants. These frauds can be detected, if adequate amount of data is collected and preprocessed and fed into machine learning algorithms. This project aims to apply different Machine Learning algorithms (Logistic Regression, Quadratic Discriminant Analysis, Neural Network, Naïve Bayes, Random Forest, Decision Tree, XGBoost) to find the most efficient algorithm in detecting the fraudulent transactions based on selected parameters. And this algorithm is used to predict the probability of a transaction being fraudulent. This not only secures the users' money but also allows the merchants to have fraud-free business and the banks to work smoothly to help the users. The significance of the project is that it brings into light the fraud that is going on in the real world to earn money illegally. It secures the digital life of a person in terms of money and hence, detects the credit card misuse.

Keyword: *Machine Learning, credit card fraud, Logistic Regression, Quadratic Discriminant Analysis, Neural Network, Naïve Bayes, Random Forest, Decision Tree, XGBoost*

SIGN LANGUAGE RECOGNITION USING OPTIMIZED CONVOLUTIONAL NEURAL NETWORKS

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The method of communication with the people having hearing and speech impairments is based primarily on sign languages and the lack of knowledge about the various sign languages makes this communication difficult. This project focuses on developing a system where user input based of hand sign gestures will be converted to the corresponding alphabets. Some challenges associated with this field are useful feature extraction and classification of various signs, extraction of the hand boundaries and identification of signs which involve a motion of the hand since these require the extraction of temporal features. This project is focused on optimizing the 2-D convolutional neural networks for extraction of spatial features in the hand sign images for Sign Language Recognition.

Keywords: *Sign language, sign language recognition, convolutional neural networks, segmentation, image processing, hand masking, sign language detection, spatial features, contour extraction, American sign language*

CHATBOT WITH A GESTURE BASED USER INPUT

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The paper describes a approach towards building a chatbot with gesture based input. A gesture table will be described here which is a mapping sequence of the appropriate gestures to the appropriate commands they mean. After successful gesture recognition ,the classified or recognized gesture is looked up in the table and is converted accordingly into text and then that text is fed into the chatbot program as input and appropriate command is executed.

A POINT OF INTEREST RECOMMENDATION ENGINE WITH AN INTEGRATED APPROACH

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Tourism is turning out to be a vital industry for a maximum of the economies, especially for non-industrialized nations, wherein it represents the principal supply of earnings. A POI Recommendation Engine predicts and gives personalized advice of a set of locations or entities based on the interests of a user. Recommendation engines are broadly used in tourism, but there is no unified framework model that takes in the geographic location of a user, review rating of the location, and the user's past behavior. This proposed system is built upon all these three components being mapped into an integrated approach to recommend a point of interest. The purpose of building this model is to upgrade recommendation approaches, which are mainly focused on key-word-dominant Internet Carrier search engines possessing deficient advice performance and heavy dependence on correct and complex queries from customers. We apply Hierachal Agglomerative Clustering and Collaborative filtering as a source of getting information

and recommendations on this tool. The outcome shows a specific set of locations suited along the geographical location of the user, review ratings of the location, and past behaviour of a user.

Keywords: *Recommendation system, Agglomerative hierarchical clustering, Collaborative Filtering, Location based social networks*

VIRTUAL REALITY EMULATION PLATFORM FOR IMAGE VISUALIZATION

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Mixed reality (MR) has opened many new means of imparting education, in the fields like medicine. The added advantage of a medium to project virtual content onto the real world would allow students to view 3D replicas of the human anatomy and its components in their own environment. In this project we are proposing a MR (mixed reality) platform for Medical education which creates digital shared experiences for teaching and learning within classrooms much more interactive. The application is being created by using the basic concepts of: Virtual reality and augmented reality, the concepts and the new technologies to display/visualize the applications are the core of the mixed reality concept implemented for the Medical education.

Keywords: *Virtual reality, Augmented reality, Medical education*

CLASSIFICATION OF LESION IMAGES USING TRANSFER LEARNING APPROACH

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Caused due to the uninhibited increase of abnormal skin cells, skin cancer is a result of unrepaired DNA damage to skin cells which in turn, leads to mutations, or genetic defects. These defects cause rapid multiplication of skin cells and they eventually formulate malignant tumours. Although skin cancer is one of the most lethal types of cancer, a fast diagnosis can lead to a very high chance of survival. The diagnosis of skin cancer is primarily performed using visual methods, usually an initial clinical screening. Dermoscopic analysis, a biopsy and histopathological examination consist of the conventional methods that follow the clinical screening. An automated classification of skin disease using images is a difficult job due to the microscopic variability of the appearance of different classes of skin lesions. Over the last few years, convolutional neural networks (CNN) have been increasingly employed for the task of automatic and semiautomatic image classification. Through this work, we aim to use a transfer learning-based deep learning approach to detect cancerous lesions in dermatological images. The process would involve pre-processing and data augmentation tasks being performed on the lesion images. Following this, a pretrained transfer learning model would be fine-tuned and used for feature-selection and a classifier model would be added on top of it to classify the images of skin lesions into ‘malignant’ and ‘benign’ categories. The model was tested using standard evaluation metrics to evaluate its effectiveness. Our results show that a transfer learning approach can work as an effective screening tool to detect cancerous lesions.

Keywords: *Deep learning, skin lesions classification, convolutional neural networks, skin cancer, transfer learning*

MOVIE RECOMMENDATION SYSTEM TO SOLVE DATA SPARSITY USING COLLABORATIVE FILTERING

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With the event of multimedia technologies, various sorts of movies and videos on social media are exploding, making it difficult for online users to seek out useful video information. For this, movie recommendation systems are widely used. It has been observed that 2/3rd of the films watched on Netflix are the recommended ones to its users. the target of our project are going to be to use Implicit feedback given by other users to recommend movies, i.e., Ratings given by them. Implicit feedback will help to enhance Data Sparsity as for a replacement logged-in user, the system won't have details of their past liked movies. So, by matching the similarity with other users are often a plus point to recommend movies that they could like. the anticipated result will depend upon the positive attitude, i.e., if predicted rating is high, then it'll be recommended, otherwise it'll not be recommended.

Keywords: *Collaborative filtering, Data Sparsity, Cold start problem, Recommender System, Big data analysis*

EARLY DETECTION OF DISEASES USING DEEP LEARNING

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Early detection of preventive diseases is important for better disease management, improved interventions, and more efficient health-care resource allocation. Different machine learning paths have been made to use information from Electronic Health Record for this job. Many of previous pursuits, however we mainly look on structured data and lose the large amount of information in the unstructured data or notes. In this job we design a general framework for disease prediction that can use both free text medical notes and structured information. We will use multiple architectures like CNN and LSTM for structured part and text mining for unstructured part of the notes. And, we also compare different visualization approaches for medical professionals to portray model predictions.

Key words: *Machine Learning, DeepLearning, LSTM, CNN*

STABLE COMMUNICATION AMONG VEHICLES THROUGH VANET

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Ad hoc networks in which no static station or infrastructure is supported are gaining increasing popularity. Due to mobility, the topology of the network changes regularly and wireless links break down and reorganize frequently. The increasing research of real-time communication in Mobile Ad Hoc Wireless Networks (MANETs) is to enable distributed applications among mobile nodes in infrastructure-free environments. Vehicular Ad Hoc Networks (VANETs) classified by nodes with high mobility and various disturbed environments represent a number of challenges dissimilar to MANETs. Applications of I2V and V2R wireless communication that make use of VANETs require reliable communication that gives a full guarantee of real-time message propagation. Nowadays, many of researches in VANETs domain focus on the development of layered communication protocols. In this paper, we analyze and compare relevant technologies in the fields of VANETs. We are providing GUI-style model development tools to develop a vehicular traffic simulation. On top of the traffic simulation, we use TimeBounded Medium Access Control (TBMAC) protocol. In the end, we check the performance of the simulation and tell about its merits and pitfalls.

Keywords-VANET, TBMAC, V2V, V2I.

DETECTION OF RED AND WHITE BLOOD CELLS COUNT FOR LEUKEMIA CANCER DIAGNOSIS

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During hematopoiesis, the red and white blood cells are produced which are mainly stored in the human body. About 45% of the blood content constitutes the blood cells while the remaining forming the liquid portion of the blood. This paper aimed at determining the red and white blood cells count in the smear image of the blood captured using compound microscope. The image of the blood cells is analyzed digitally to predict the type of Leukemia cancer present in the blood cells. The method combines Plane extraction and counting techniques to determine the count of White and Red blood cells and also detect the presence of Leukemia Cancer. An experiment was conducted and the result obtained from our proposed method shows 91% accuracy for red blood cell count, 86% accuracy for white blood cell and 96% accuracy on Leukemia Cancers.

Key Index: *Red Blood Cells, White Blood Cells, Blood Cells count, Leukemia Cancer, Plane Extraction.*

A SURVEY ON MOVIE SUCCESS PREDICTION USING DIFFERENT ALGORITHMS AND FEATURES

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Among various innovations that are taking place, the movie industry is also extending speedily and is one of the most popular and powerful mediums of entertainment internationally today. To make a movie successful it requires billions of dollars for investment, thus it becomes important to predict the success of upcoming movies thus saving the remuneration of a big team working towards a movie. This can also be helpful for the movie-goers to know the success rating and quality of a film and then decide whether to buy the tickets or not depending on its sales performance. There are several attributes that play a role in success prediction like actors, directors, writers, gross, duration, public ratings, online reviews, number of screens, release date and different algorithms can be used to propose such models. The focal point of this study is to propose an efficient model to predict movie success before it is released based on different factors using various machine learning algorithms. Our proposed research is to design an intelligent decision support system for the producer which will suggest the most suitable combination of actors, directors and the countries to release the movie at the earliest stage of production using a hybrid algorithm.

Keywords – *Machine Learning; Movie Success; Predictors; Success Prediction Model; Box Office*

SENTIMENT GLOSSARY ANALYSIS ON TWITTER WITH STRATIFIED CONTROLLED SUBJECT MINIATURE

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Sadness is an international well-being situation. Informal groups allow the prompted populace to proportion their encounters. Net-primarily based social networking furnishes boundless possibilities to impart encounters to their first-class recommendation. In cutting-edge situations and with accessible new advances, twitter can be applied thoroughly to gather statistics as opposed to social affair records in traditional approach. Twitter is a most commonplace on-line lengthy range informal communiqué gain that empower purchaser to proportion and select up records. This empowered us to precisely speak to client collaborations with the aid of relying at the record's semantic substance. Pre-processed tweets are put away in database and people tweets are prominent and characterized whether it is purchaser watchwords related submit making use of help Vector gadget order. The customer watchwords can be anticipated whether or not it is a high-quality advice utilizing extremity. To offer an intelligent programmed framework which predicts the perception of the audit/tweets of the overall population published in online networking. This framework manages the difficulties that display up during the time spent Sentiment evaluation, non-stop tweets are considered as they may be rich wellsprings of data for assessment mining and feeling exam. The fundamental intention of this framework is to carry out consistent nostalgic examination at the tweets which might be extricated from the twitter and provide time based research to the patron.

RECOMMENDER SYSTEM FOR SHOPPING ON AMAZON

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This paper studies various recommendation methods used and aims to build a hybrid Recommender System for personalized recommendation on Amazon dataset.

Keywords—*Recommender System*

SMART FRAMEWORK FOR PRODUCTS IN COMMUNICATION SEGMENTS OF SOCIETY

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Agro Aid is a Mobile application devised for assistance to the supply chain management in India using smart frameworks for products in the society. The purpose of this application is to merge android development and machine learning techniques to develop an app that maintains a transparent and easy activity of supply chain management system in India. Producers, Suppliers and Customers are the major components covered in this project. The app will track every step of product development right from the primary producer to the customer. We propose to carry out this using android application and machine learning techniques. It is an effort to elevate smart city and communications . The Producer sector include the farmers and other primary producers. The supplier sector will involve suppliers and companies who carry out necessary supply management tasks. The consumer's section will help customers to track their shipments and maintain order.

SENTIMENT ANALYSIS ON E-COMMERCE WEBSITE

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The growth of sentiment analysis is a major achievement in Computer Science. Sentiment analysis is the technique to gather the text data and analyze the data for getting polarity differences in the sentences. It helps to analyze the opinions, emotions, etc. that are exchanged by and between humans. The data can be divided into different segments depending upon the meaning of the words. The data is growing rapidly and undoubtedly it is a rich source of information. Thus Sentiment analysis can be helpful in various fields such as social media analysis, politics, disaster management, etc. In this paper, we are doing Sentiment Analysis to understand the mood and opinion of the people by analyzing the reviews given on an e-commerce website by using various NLP techniques and NLTK along with other processes. We are trying to build a system that can segregate the sentences into positive sentences that have no abhor discourse and negative sentences which can be either hateful or offensive. We try to analyze the sarcasm and emotions too. The sentiment of a review tends to analyses the brand value that leads to further improvisation of the product. In conclusion, it will help to improve the overall decision-making process for the brands and the customers.

Keywords – *sentiment, NLP, NLTK, abhor discourse*

PROJECT HELP CHATBOT

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The growth of artificially trained machines such as chatbots are a major achievement in Computer Science. A Chatbot is a software that simulates the human behavior and carries out conversations in a human-like manner. It helps to analyze the opinions, emotions etc. that are exchanged by and between humans. Chatbots are considered to be a pseudo- human medium of interaction with a computer system or a software technology meant to make a user experience conversation with using artificial intelligence. The vast fields of Deep Learning and NLP toolkits have rendered engineers and scientists come up with creative applications of a chatbot to make life easier. This paper intends to introduce one ore unique application of chatbot which serves as a platform for the regular college students to find a perfect team for their projects. Students not only seem to face difficulty in choosing a team but also realizing the actual knowledge about the project they want to make. This chatbot gives just the right solution by matching the known skills using NLP pattern matching techniques to find the best suitable project with the required skill set. Students not only save time but also find suitable teammates with equally qualified knowledge. In conclusion it will help to improve the efficiency of an individual as well as a team by contributing a helping hand to its members to lead them ti the success of their project.

Keywords – Machine Learning, NLP, AI, Deep Learning

DIABETES AND ITS COMPLICATION PREDICTION USING MULTI TASK LEARNING APPROACH

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Diabetes is a long term disease that ends up in multiple side-effects. It has now become a mass silent killer in society because it doesn't show any signs previously to the patients until it's been during a dangerous level. Most people just realize their diabetic when the stage was past the point of no return. In many cases, Diabetes causes many complications to other organs, such as kidney, cardiovascular, liver or blood pressure [1]. This work tends to apply a unique multitask learning approach [2] to simultaneously model the relation between multiple complications wherever every task corresponds to risks of modelling of complications [3]. It also uses feature selection to reduce the set of risk factors from high-dimensional datasets. Then using the concept of correlation, It finds the degree of relativity among various side-effects. The proposed method is able to identify the possible future health hazards identified with the diabetes patient. This will enable us to explain medical conditions and can improve healthcare applications which would help to improve disease prediction performance.

Index Terms—Diabetes Risk;Feature Selection;Healthcare; Multitask Learning

EMO-SHAZAM: PLAY MUSIC RELEVANT TO EMOTION, USING CNN

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The emotion can be tricky to understand, leave apart the field of technology and automation, it is sometimes difficult for the human to understand the emotion of the other person. It has been a challenging task to build a system with the computer vision to recognize the human emotion. It is a widely popular research problem. The evolution of computing in the field of deep learning is a popular way to tackle this problem. In our work, we propose a convolutional neural network (CNN) approach and utilizing the VGG like network architecture to achieve the feat. These methods which we worked upon were trained on (JAFFE, from zenodo.org) an emotion dataset. For testing these, the models were checked for 100 randomly selected images from Labeled Faces in the Wild (LFW) dataset (from kaggle) and FER Dataset (researchgate.net), which has candid images. Using this technique emotion of person can be achieved with a perfect tradeoff between speed and accuracy over 80%. This detected emotion will further be used to play song based on the emotion.

Keywords: *Convolutional Neural Network, VGG Architecture, deep learning*

CLASSIFICATION OF BREAST CANCER USING TRANSFER LEARNING APPROACH

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In today's world cancer is one of the most deadly disease that a person can suffer from. Breast cancer is one of the form of the cancer , It mostly happens to women .The only possible way to fight and win against the cancer is recognition of the cancer at the very early stage , if it could be done then the chances of the survival increases by 80% .The cancer can be predicted using deep learning methods , the current deep learning models are fed by mammograms which are the x-ray images of the chest region of the man or the women . The neural network can be trained for recognizing the images . Here we can predict whether the image belongs to person who is at the very early stage of the cancer or he / she is suffering from it from very long time which is also termed as malign .The only problem that occurs with using the traditional neural networking is that it requires a large amount of time and processing of the data-sets . The transfer learning approach can reduce the problem of using huge amount of data-sets and hence reduces the time complexity of the the data on which the model is being trained . Here we can select any fine tuned network such as VGG19 , VGG16 , Google Net , Alex Net , ResNet and so on for the knowledge extraction process.The network can be used to classify the images and further that result can become the base for the next model that can be used to learn and produce the results.The motivation of using the neural network is that it can provide multi-fold benefits such as better performance compared to other traditional machine learning techniques .

Keywords - Transfer Learning , Deep Neural Networks , Keras , Tensorflow , Convolution Neural Networks , Malign , Benign , CNN

COMPREHEND PUPIL ISSUES BY SOCIAL MEDIA MINING

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Young people spend most of their time on the social media sites such as Twitter, YouTube, Facebook. Most of the day, they spend on these sites texting, posting, tweeting their inner thoughts. There is an abundant amount of information on social media that is untapped. Hence Social media mining is an efficient way to understand the emotions of our young students go through. Using twitter, we can extract tweets according to geolocation and analyse the data to deduce these social issues of students facing at that particular location. The data we get from social media is dirty. We have to clean that data and calculate the sentiment-score by using the best algorithm. Using Sentimental score, we observe whether a tweet reflects a positive, negative or neutral sentiment. In our study we create a deep learning model which figure out the sentiment of the tweet. Using retweet count and favorite count as parameter we deduce the most negative tweets, thus helping us to address the most relevant issues faced by the students in educational institution.

Keywords—Social media mining, Sentimental analysis, Tweets, students, education

ANALYSIS OF EEG DATA AND PREDICTION OF SCHIZOPHRENIC CHARACTERISTICS BASED ON EEG SIGNALS

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Schizophrenia is a serious mental disorder in which people interpret reality abnormally. Schizophrenia may result in some combination of delusions, hallucinations or disordered behavior or thinking that alters regular functioning. People with schizophrenia require treatment that spans their entire life. Timely treatment generally helps getting the symptoms under control prior to the development of serious complications and help improve long-term outlook. An increasing number of schizophrenia studies have been using Machine Learning approaches for examining Electroencephalography (EEG) data. Machine Learning Algorithms applied on reasonably large EEG datasets can help in faster diagnosis, early risk prevention, and possibly prevention of the disease. We will be making efficient use of Artificial Neural Networks (ANN) algorithm to train a prediction model. Previous results show that accuracy of neural networks algorithm has been consistently high. EEG data from 32 control and 49 schizophrenic patients is contained in the dataset. The dataset will be split to make a training and testing set. Both sets contain control subjects and patients. The analysis will be done in RStudio. The analysis will help in better understanding of the effects on schizophrenia on the brain and pinpointing the specifics of the disease. It will also enable us to identify if a patient has schizophrenia by looking at the EEG report of a patient.

Keywords— *Artificial Neural Network, Data Analysis, Schizophrenia, EEG, Machine Learning.*

AUTOMATIC IOT PET FEEDER USING ARDUINO UNO

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The internet of things, or IoT, is a network of interconnected objects able to connect and exchange data. “Smart Home” is one of the most trending implementations of IoT. With increasing workforces and more working members in the family, raising pets has become an issue. This project proposes to create an automated system to provide food to the pet on time based on user given instructions. The user need not be physically present to feed their pets and can program the system to work automatically. However, the user will have to wash the container and must take care about the size of the valve to prevent food from getting stuck in it. Additional components like cameras could also be installed with the system to keep a check on the pet’s activities for better results. An embedded integrated system like this will greatly facilitate the ease of feeding pets for busy owners.

Keywords— *IoT, Arduino uno, motion sensor, speaker, pet, feeder, servo motor, Wi-Fi module*

SMART GLOVE FOR SIGN TRANSLATION TO TEXT AND SPEECH AND TEXT TO BRAILLE CONVERSION

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Sign-language is one of the means of conveyance for people with hearing or speaking disabilities amongst themselves as well as other people. It is considered to be a globally recognised language. Each country may have its own slangs and its own modifications to the language. Hence it becomes a difficult to keep up with such dynamic behaviour of the language. Our project aims at creating a low cost, Arduino based Smart Glove which will be able to translate the gestures made in sign language and give an output in text as well as speech format. This output will be displayed on a mobile phone application using a Bluetooth module. A system to convert text which can be entered on the application to braille using vibrating motors would also be implemented.

Keywords— *Internet of Things, Braille, Natural Language Processing, Arduino.*

ANALYSIS OF MACHINE LEARNING ALGORITHMS VIA DETECTION OF FAKE NEWS

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In the modern political climate, fake news is a growing and legitimate threat to our institutions and all voters. Fake news articles are those which are “intentionally and verifiably false”. This project is aimed at implementing combinations of various feature extraction techniques along with various Machine Learning algorithms from distinct categories and for the purpose of detecting fake news articles through their content. The results of this supervised binary text-classification problem will be compared and ranked. Kaggle which is owned by Google LLC and is a community of data scientists and machine learning engineers which will fulfill our requirement of a reliable source that provides us with a verifiable dataset of real and fake news. To mirror the real-world environment, the quantity of fake news articles in the dataset, will be substantially less than the amount of real news articles. A data set with approximately 85: 15 ratio will be used.

Keywords: *Fake, News, Classifiers, Vectorizers, N-grams, F1-score, Precision, Recall, Faux*

ANALYSIS ON HEART ARRHYTHMIA PREDICTION AND CLASSIFICATION

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Machine Learning is an integral part of Artificial Intelligence, is a science of statistical models and their algorithms. It is used to train a model to perform a real-world task without explicit commands. Heart Arrhythmia is a life-threatening disease dealing with an irregular heartbeat. ECG signals are the most accurate measure to find out the functionality of the cardiovascular-system. We put forward a solution to solve the difficulty of choosing among the various state-of-art models for heart arrhythmia prediction.

Keywords: *Machine Learning, Artificial Intelligence, ECG, Heart Arrhythmia*

REAL TIME IR BASED INDOOR ENVIRONMENT MONITORING AND CONTROL SYSTEM

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Electronic gadgets have become an integrated part of lives nowadays. The Internet has become one of the things which is being used as the most common and important thing now and will be in the future too. Internet of things (IoT) is the future of this world with numerous features and it has unlimited and extensive expandability. Anything can be triggered with the use of a microcontroller which is connected with some basic sensors to it with some basic script. Now coming to the concept of a “Controlling home appliances with Smart glasses”, one can basically control any appliance in the house such as fan, tubelight, television etc. with IR signals. Here, we use a basic IR sensor which is attached to a modified spectacles and the frequency level of the sensor will be configured in such a way that the IR receiver gets the signal from the transmitter. We can set some specified /separate timer and frequency code for different appliances so that it alone turns on keeping the rest untouched while operating. So, by adding these separate timers for each different appliance we can easily control them with the IR sensors. We can connect all the appliances to the relay board which will be further connected to an Arduino. This system can also be controlled via the Internet using a simple NodeMCU and Blynk web server and application. When the above mentioned cases do not work we can switch over to Bluetooth which controls the appliances locally within the proximity range. So, by integrating all the use cases of the above mentioned system with an XOR IC chip, we can control and monitor a single device using all the techniques involved.

DIGITAL FARMER ASSISTANT

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The Indian Agriculturalists have been considering soil fertility reduction as a major setback to Indian agriculture output and its growth, uncalculated farming or excessive use of chemicals - synthetic fertilizers and insecticides - is responsible for soil degradation and decreasing crop yield. Several studies and reports suggest that the farmers who use their approximations to use fertilizers and crops to grow, degrades the soil fertility much faster and causes a very low yield. To counter this problem of soil degradation and low crop yield, a system is developed to recommend the farmers which crop would be beneficial for the soil or which crop would be most profitable for both farmer and the soil. The portable device, synced with a server checks for soil quality which can be kept at the farmer's house. The system performs calculations and estimations using Machine Learning and Data Mining Algorithms, and then recommends crops for that particular time and soil conditions on farmer's smartphone. The system aims to reduce the farmers' pain of going across cities just to get the soil checked from the government's Soil Testing Laboratories and getting results after 2-3 weeks which is valid for a period of 5 years. The goal is to improve the overall crop yield and to maximize the profit gain from the land with minimal effect on the soil health.

Keywords— *IoT, Machine Learning, Agriculture, Soil Analysis, Mobile Application*

SMART DOORBELL SYSTEM WITH FACIAL RECOGNITION FOR PEOPLE WITH HEARING IMPAIRMENT

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Computers can outperform humans in a variety of field nowadays and out of which one is facial recognition specially when there is huge database for faces. Face recognition have various advantages like increase in security and airport surveillance, it also advances the human-computer interaction in a better way. A system is proposed here which will aid people having hearing impairment or deaf, to intimate them of someone on the door. People with hearing impairment face difficulty in knowing the presence of any visitor at the door using conventional doorbells. This system uses facial recognition to intimate the owner about the person's identity and if the user is unknown to the user, it will ask to add the person to the database or not. This paper is based on IOT, which uses Raspberry Pi, Pi Cam and a wearable device for the user to let him/her know about the person on the door, where the notification will be delivered by a vibration from the wearable device.

Keywords—Raspberry Pi 3, Pi Camera, IOT, Wearable device, ESP8266, Vibration motor, facial recognition, doorbel

GSM BASED LIVE TRACKING SYSTEM WITH SAFETY RECOMMENDATION FOR THE USER

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Travelling has become an unavoidable part of our lives. So in order to make travelling easier and easily accessible we have come up with the idea of GSM based live tracking with user recommendation system in government buses so that the people could trust and enjoy government vehicles not like before. "Efficiency is key for prosperous growth in this generation." So for making a resource efficient you have to use the existing commodities properly, An engineer has to always come up with an exceptional idea to make betterment for the living. This Bus tracking system elevates a question about why use a facility when there is already a facility that can accomplish the needs of normal civils to get the best out of public transportation. Needs increase day to day, either way a person has to run his life ,so in order to make the tedious life sophisticated we have taken some initiatives in coming up with Government bus live tracking system which can be used to track the bus through mobile phone.

Keywords: *Government Bus Tracker, Efficient, Dynamic Environment, Premium Services, Simple Interface, Best Transport Services.*

ENERGY MONITORING PLATFORM: A HIGH-PERFORMANCE SMART METER DATA ANALYTICS PLATFORM ENGINE ALONG WITH A CHATBOT

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4th Industrial revolution or Industry 4.0 is a concept of factories in which machines are augmented with wireless connectivity and sensors, connected to a system that can visualize the entire production line and make decisions on its own. To remain competitive, Industries or factories are one of the major factors leading to the consumption of energy. However, these industries are facing two obstacles. The first one is the low availability of energy and the other is increased cost of the current available energy. Different alternatives like Generators and Inverters have their limitations when it comes to cost and supply. The industries need to optimize the usage to stay price in check. It has become a necessity for the industries reduce energy consumption for a comparable level of activity to observe it. The platform is the answer to these problems. It is a solution that puts the client/user in control of their energy consumption by enabling live monitoring of the energy smart grid data via a dedicated online platform.

NUTRITION TRACKING AND FOOD PREPARATION AID FOR VISUALLY IMPAIRED PEOPLE

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The process of achieving proper nutrition is distinctly different for consumers who experience blindness from consumers who do not. The state of field research has observed the phenomenon that people with blindness experience health issues caused by dietary actions at a much higher frequency than those with adequate vision. People who cannot see at all or struggle to identify food products and nutrition facts are both affected. Lack of ability to identify how the specific foods being consumed relate to the nutrients and calories needed has been shown to lead to a strong presence of nutrient deprivation and abnormal BMI. In particular, the perception of preparing food for an individual with a vision impairment varies from those without blindness, primarily in behaviours relating to reading labels, taking measurements, and cutting vegetables. A resulting investigation looks at possibilities for robotic intervention to optimize the process of preparing food for ease and nutrition and implemented obscure context object detection and tracking system, utilizing real-time video processing and a single camera.

Keywords—Object, tracking, ingredient, blind, visually impaired, food preparation

LIVER AILMENT ANALYSIS AND PREDICTION USING MACHINE LEARNING ALGORITHMS

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Liver Diseases ensure more than 2.4% of Indian deaths every year. Liver Diseases are additionally troublesome to diagnose within the early stages due to refined symptoms. Typically, the symptoms become apparent once it's too late. This paper aims to boost diagnosing of liver diseases by exploring two ways of identification-patient parameters and ordination expression. The presentation additionally discusses the machine algorithms that may be utilized in the same methodology and lists demerits. It proposes ways to boost the potency of those algorithms. Problems with liver patients don't seem to be simply discovered in associate early stage because it is going to be functioning usually even once it's partly hindered. Discovering the liver disease at an early stage may increase the chance for the cure. In case of Indians, Liver failures are at high rate of risk. It's expected that India might become the liver disease capital of the world. The increase of liver infection is contributed because of desk-bound style, high consumption of alcohol and smoking. There are regarding one hundred kinds of liver infections. Therefore, working on a solution with the use of technology will help in diagnosing the ailment and going to be a good advantage.

HUMAN CONCENTRATION LEVEL RECOGNITION BASED ON VGG16 CONVOLUTIONAL NEURAL NETWORK (CNN) ARCHITECTURE

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Recent developments in Artificial Intelligence have availed a plethora of deep learning algorithms which enable automatic feature extraction such as residual neural network(RESNET), InceptionV3, Xception, Visual Group Geometry 16 (VGG16), LeNet etc., to solve numerous real world problems like object detection, facial emotion recognition and image classification. These deep learning algorithms have a high accuracy in comparison to prior machine learning algorithms which extensively rely on hand crafted features such as Scale Invariant Feature Transform(SIFT), Local Binary Pattern(LBP), and Histogram of Oriented Gradients(HOG) to mention, but a few. To solve the problem of student monitoring due to lack of human supervision during online classes, we propose a Deep Convolutional Neural Network (DCNN) model based on VGG16 architecture for human concentration level recognition. The model is developed using python programing language, open CV, keras and tensorflow framework on google colab cloud software platform. The proposed model comprises of a sequence of sixteen convolution, pooling, dense layers and a softmax classifier for categorical output. Input size into the model is 224X224 pixel colour images. In the preliminary phase, images from the datasets go through a series of pre-processing which includes conversion into 224X224 size color images so as to conform to the VGG16 architecture requirement. In the second phase transfer learning technique is used to design the model by importing the VGG16 model from keras open source library on Google Colab platform and then fine-tuning the last layer while freezing previous layers. Model compilation is implemented in the

third phase using an Adam optimizer with adaptive learning rate. Facial Emotion Recognition (FER) 2013 public dataset and a custom dataset is used to train and validate the model in the fourth phase. Lastly the model is saved as .h5 file in python. The experiment yielded a validation accuracy of 93.47%. Student concentration classification is obtained by extracting frames from web camera and using the facial images as input to the saved .h5 model for providing real time feedback to student and tutor.

Key Words: Deep Convolutional Neural Network (DCNN), Visual Geometry Group 16 (VGG16), Transfer Learning, Python, Open CV, Keras, Google Colab, Emotion Recognition

FINGER VEIN AUTHENTICATION FOR VOTING USING IOT

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In this era, we see that the security threats are at a constant rise and it's high time we rethink the existing security paradigm. Voting is the cornerstone of our democracy and the fundamental right of our citizens, but the recent allegations regarding the manipulation of voting machines, puts forward a serious question, that whether the existing method is tamperproof or not? In this regard we propose a finger-vein based authentication system for secured voting. Finger-vein authentication is a bio-metric tool that utilizes an individual's finger-vein for carrying out the personal identity verification. It's implementation is effective and economical, these unique features makes it different from the other bio-metric tools and advocates its wide usage in the security systems.

Keywords used: Finger-vein, Voting, Authentication, feature extraction, matching.

EARLY DETECTION OF DISEASES USING DEEP LEARNING

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Early detection of preventive diseases can play a crucial role in timely intervention and management. It also assists in efficient distribution of resources in the healthcare sector. Many approaches involving various machine learning algorithms have been used. However, they focus on structured data losing the wealth of information in unstructured data. We will use multiple architecture like CNN and LSTM for structure part of the notes. We also implement the GRU model that has shown impressive results on smaller datasets.

Index Terms—Machine Learning,DeepLearning,LSTM,CNN.

PREDICTION OF STOCK PRICE MOVEMENT USING LSTM

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Making prediction of the stock price movement is very difficult due to a lot of fluctuations in the prices and a large number of factors that impact it. However, this project tries to make predictions on the future prices of AAPL stock using historical prices and look into the impact of other companies' stock prices, including FB, AMZN, GOOGL and NFLX stocks, on its prices. These companies together with AAPL stock form FAANG, an acronym for the stocks of five prominent American technology companies. Latest Machine learning algorithms can be used to get insights and trends from the data and predict future values quite accurately. This paper makes use of Long Short-Term Model (LSTM), an Recurrent Neural Network (RNN) to make the prediction using Close values of all the companies included in FAANG as factors. The experimental result predicted by the model shows that this method can get good results for AAPL stock and can clearly show the impact of other prominent companies in the technology industry.

Keywords— Stock trading, Close values, Recurrent Neural Network, LSTM, MSE.

SPEECH AND OPINION RECOGNITION FROM A CONVERSATION

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Speech Recognition is an interdisciplinary technique used to convert spoken language into text. It is a sub domain of computational linguistics and can be implemented using Machine Learning and Deep Learning Algorithms. Opinion Mining or Sentiment Analysis is a process which enables identifying opinions expressed by an author in a piece of text computationally. This opinion refers to the polarity of the expressed opinion, i.e. positive or negative. Through this research work, we aim to combine these two natural language processing techniques and devise a system that can take speech as the input and determine the sentiment behind the speakers' words. The subject of the speech input may vary but the end goal is to recognize whether the attitude of the speaker towards the subject was positive or negative. The input will be converted to text and this text will then be classified using several different machine learning techniques. These include Naïve Bayes' Classifier, Support Vector Machine, Logistic Regression and Decision Trees. After classification, the results for the three classifiers will be predicted and compared. Future scope of the project includes creating an ensemble of these classifiers to get better accuracy and precision of determining the sentiment of the speaker.

Keywords— Sentiment Analysis, Machine Learning, Natural Language Processing, Opinion Mining, Speech Recognition

FAKE REVIEWS OF CUSTOMER DETECTION USING MACHINE LEARNING MODELS

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Online marketplace has became very popular as most of the products and it's related services are bought online. After buying the product customer have the option of providing the review of the product and it's services like star rating, overall view about the product etc. As a result millions of reviews are produced which make very difficult for a consumer to get the correct opinion of the reviewers whether it's beneficial to buy that product or not. As we know that most of the consumer first try to get the correct information about the usefulness of the product which is provided in the reviews of the consumer who have already purchased that product which helps in the decision making of the consumer whether it's beneficial in buying that product or not. Thus customer reviews plays a very important role in the decision making of a consumer. Therefore this has given rise to fake reviews about the product and it's services. Sentiment Analysis and Natural Language Processing Techniques plays an important role in identification of users sentiments about a particular product and it's services. In this paper algorithms used for detection of fake reviews are LSA(Latent Similarity Analysis), TFIDF model, Support Vector Machine, Logistic Regression and CNN along with simple and understandable user-centric and text-centric features.

Keywords: *Fake reviews, Sentiment Analysis, Term Frequency and Inverse Document Frequency Model.*

NFC BASED PATIENT LOG DATA STORING SYSTEM USING FOG COMPUTING

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With the expansion in propels in data and correspondence technologies Internet of Things (IoT) has evolved. In the healthcare environment, the utilization of IoT innovations carries comfort to doctors and patients as they can be applied to different restorative zones, (for example, consistent ongoing observing, patient information management, medical emergency management, blood information management, and wellbeing management). In emergency clinics, where per patient time defers prompts a ton of hanging tight for the patients in a line. In case the vitals estimation is done in a quicker way, a reduction in this time can be watched. IoT can be useful to diminish it. The Near-field correspondence (NFC) innovation is the center advances of IoT organizations; why not misuse its security includes in social insurance. Fog computing is used for short term analytics and in case of emergency situations, cloud computing is used for long term analytics. Fog computing enables operations between the end devices and data centers for cloud computing.

Keywords—*IoT: Internet of Things; Wi-Fi: Wireless Fidelity; IDE: Integrated Development Environment BP: Blood Pressure, NFC, Fog Computing*

QUEUEING TIME ESTIMATION TECHNIQUES:A SURVEY AND A CONNECTED APPROACH USING IOT,CLOUD COMPUTING AND IMAGE PROCESSING

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There is often congestion around the city due to long queues at various public places like Airport. Having an estimate of waiting time and count of people at these places can help in better civil planning and reduce further congestion. Not only will it help with civil planning but it will also allow people to plan their travel to such places accordingly and smartly. This paper considers the current ways of solving this problem, compares their advantages and disadvantages and gives a perspective on their future enhancements. Furthermore, we propose a system which uses image processing and cloud computing to calculate queuing time estimates using periodic image capturing and still image processing techniques to save bandwidth and costs as well and give good, if not the best estimates.

Keywords—*IoT, Cloud Computing, Image Processing, Smart city*

VEHICLE NUMBER RECOGNITION FROM VEHICLE IMAGES: A SURVEY

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Automatic vehicle number recognition is used to recognize the vehicle number plate from images of vehicles and also the number from the number plate. It plays an important role in some applications such as automated parking, over speed tracking of vehicles, road traffic monitoring and issuing fine for traffic rule violators. Several challenges like number obstruction, faded numbers, blurring, time consumption, etc. are involved in number recognition from real-time images. We survey the techniques that have been applied for this problem. We also provide a classification of the techniques which will be useful for researchers to identify research gaps in this area. Finally, we provide future scope for research in this area.

Keywords —*Number plate recognition, Extraction of character, Character Segmentation.*

IOT BASED STOLEN VEHICLE MONITORING SYSTEM

Jaskeerat Singh Akshit Singh R.jeya

The current transportation system is not ready to adapt to the growing problem of stolen vehicles. This paper aims to propose a stolen vehicle monitoring system that uses vehicle-mounted RFID tags for STOLEN VEHICLE DETECTION. This paper uses a technique to take care of the issue of stolen vehicles using a database of the last known location of the vehicle and cross-reference the owner's information present in the system. Our system provides an easy platform to improve the maintenance of the database of stolen vehicles that the management system gathers. This information from various traffic light intersections is collected and problem area lanes are red-lit in case of a stolen vehicle is detected using an RFID tag reader. The Arduino board is connected to a GSM module which will be used to establish a connection to the local server where the database will be hosted from. The final information of the vehicle will be sent to the owner and the concerned authorities.

AN IOT BASED INTELLIGENT SAFETY SYSTEM WITH SENSORS FOR SMART HOMES

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Advanced metering system is used to measure, collect, store, analyze and use power consumption information. At present, there is no official version standard released at home and abroad. Advanced metering system is used to measure, collect, store, analyze and use power consumption information. At present, there is no official version standard released at home and abroad. The rapid development of smart grid puts forward higher requirements to its standardization. Series standards of advanced metering system need to be established. It analyzed the research status of the domestic and international advanced metering standard infrastructure. According to the construction progress and development trends of smart grid, it proposed specific requirements to its standardization. It launched the research of standard for smart metering equipment and power consumption information collection device. It proposed the standardization construction scheme of network communication technology and business data management and application system. At last, it put forward proposals for the standardization of smart bidirectional interaction, smart energy consumption service and information security protection system to regulate and guide the construction and application of advanced metering infrastructure. It provides technical support for perception of smart grid, intelligent control, flexible and interactive, friendly and

open, economic and efficient application of advanced metering infrastructure. This system will avoid the heavy power usages in the homes. The system will also provide security in kitchen and electrical lines. Gas sensor is used at kitchens to sense the LPG leakage and electrical voltage sensor is used to find any short circuit occurrence in the transmission lines. We also use the flame sensor to detect the fire accidents in homes. Whenever any problem occurs these sensors senses the condition and sent alert via SMS.

Keywords—*Advanced Metering System, Smart Bidirectional Interaction, Smart Grid, SMS.*

ACTIVITY PATTERN RECOGNITION USING SMARTPHONES

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It is a noteworthy computational undertaking to give exact data in regards to the movement performed by a human and discover examples of their conduct. Applications can be formed and different issues in spaces of computer-generated reality, wellbeing and medicinal, excitement and security can be unravelled with progressions in human movement Recognition (HAR) frameworks. HAR is a functioning field for investigating for over 10 years, yet certain perspectives should be routed to improve the framework and alter the manner in which people connect with cell phones. This exploration gives an all-encompassing perspective on human action Recognition framework engineering and talks about different issues related to the structure viewpoints. It further endeavours to grandstand the decrease in computational expense and critical accomplishment in precision by strategies that include choice. It likewise endeavours to present the utilization of intermittent neural systems to take in highlights from the long arrangements of time arrangement information, which can contribute towards improving exactness and also in diminishing reliance on space information for surveillance

AN ANALYSIS OF ANTI-SPOOF MECHANISMS IN FACE LIVENESS DETECTION

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One of the most widely used system to recognize the authorized person based on behavioral or physical characteristics is the Biometric system. One of the current issues with this system is that it can be easily spoofed. A spoofing attack is nothing but a situation in which a person or a program successfully identifies themselves as another person in order to use the system without the permission of authorized user thus harming or attacking the biometric recognition system. The biometric system can be easily spoofed by methods such as using face images of the authorized person, masks or videos which are easily available on social media these days. In this analysis, categorization of face liveness detection is done on the basis of different techniques used for detecting spoofing attacks. This helps in inferring various developed solutions and their particular spoofing attacks. An analysis of recent studies in the field of face liveness detection has been laid to provide a simple and clear path for future enhancement in the field of face liveness detection.

Keywords—*Face liveness detection, spoofing attack, luminance, mean RGB, entropy, S.V.M*

AN ENERGY EFFICIENT DUAL-CHANNEL PROTOCOL FOR WIRELESS SENSOR NETWORKS

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Wireless Sensor Nodes are regarded as the upand-coming technology for gathering information efficiently by using small sensor nodes to increase the reliability and lifespan of infrastructure communication systems. A primary concern for these networks is to optimize the consumption of energy and extend the network lifespan. The proposed system is using an energy efficient Zone-based routing protocol named Energy Aware Data Gathering (EADG). The collected data is received by the sink from the set of zone heads after each round. The Zone head is selected using an effective factor comprising of factors like residual energy, distance to sink. The system employs the leastenergy consuming path approach till it reaches the Sink, either through communication between Zone heads or by direct communication. The analysis and outcomes show that EADG was found to outperform the existing protocols comparing with this algorithm.

DIABETIC RETINOPATHY DETECTION USING CONVOLUTIONAL NEURAL NETWORK

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Patients suffering from prolong diabetes generally suffer from a disease called Diabetic Retinopathy. Diabetic Retinopathy has been on a rise across the globe due to the increase in the number of diabetic patients. The detection of this disease at an early stage has become vital as it prevents it from escalating high sugar levels in diabetic patients causing harm to the Retina. This damage along with other factors leads to a gradual loss of sight and eventually blindness. An early analysis of Diabetic Retinopathy will help in controlling the progress of the disease. A dilated eye exam, fluorescein angiography, and OCT are parts of the traditional screening process. An automated classification of Diabetic Retinopathy using images is a difficult job due to the microscopic variability of the appearance of different classes of diabetic Retinopathy. In recent years convolutional neural network (CNN) has been increasingly employed for the task of automatic as well as semiautomatic image classification. Through this paper, we aim to classify various fundus images of the eye into various classes of diabetic Retinopathy.

Keywords—*Diabetic Retinopathy, Retina, fluorescein angiography, Convolutional Neural Network*

PREDICTION OF DIABETES READMISSION USING MACHINE LEARNING

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Predictive analytics and machine learning have quickly become some of the most talked about topics in healthcare analytics. Machine Learning and its applications have a proven track record in many industries. From these previous success cases, valuable lessons can be learned to utilise predictive techniques in healthcare analytics for patient care improvement, hospital administration, chronic disease management, and supply chain efficiencies. Patient readmission in hospitals—of which the ones associated with diabetes are most regular—has become a sort of epidemic and its data has become a primary source of information for finding areas of improvement in healthcare. In this project we use binary classification algorithms on diabetic patient data from the US, extracted from the UCI Machine Learning Repository, to predict patients' chances of readmission within 30 days and find which factors could substantially increase that risk. Further, we attempt to reduce the number of features by a) doctor consultation and b) filter method of feature selection applied on the algorithms obtained in the primary module, and thereby improve the resulting accuracy.

Keywords—*Binary Classification, Diabetes Readmission, Feature Selection, Healthcare Analytics, Machine Learning*

SURVEY ON AUTONOMOUS BEACH CLEANING ROBOT

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consultation and b) filter method of feature selection applied on the algorithms obtained in the primary module, and thereby improve the resulting accuracy.

Keywords—*Binary Classification, Diabetes Readmission, Feature Selection, Healthcare Analytics, Machine Learning*

HAND GESTURE RECOGNITION FOR DIFFERENTLY ABLED PEOPLE WITH MESSAGE INTEGRATION

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The objective of this paper is to utilize a webcam to lively track the region of interest (ROI), in particular, the hand locale, in the picture extend and recognize hand motion, we use skin colour discovery and also morphology to delete the unnecessary background information from the picture, and afterward use foundation subtraction to recognize the ROI. Next, to stay away from foundation effects on items or commotion influencing the ROI, we utilize the kernelized connection channels (KCF) calculation to follow the identified ROI. The picture size of the ROI is at that point resized to 28x28 and afterward sent into the profound convolutional neural system (CNN), so as to distinguish various hand signals. Two profound CNN designs are created right now are altered from AlexNet and VGGNet, individually. At that point, the above procedure of following and acknowledgment is rehashed to accomplish a moment impact, and the framework's execution proceeds until the hand is removed from the camera. And then Finally, the training data set would reach a recognition rate of 90.00%, and the test data set has a recognition rate of 95.00%.

Keywords — *Hand tracking; KCF; DCNN; hand gesture recognition*

TRADE ANALYSIS IN DARKWEB

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The non-referenced web is estimated five hundred times the width of the web's surface. Darkweb accounts for about a few percentage of the anonymous web and contains all types of criminal activities: drug trafficking, counterfeiting, hacking, etc. Dark Net Markets (DNM) are e-markets usually hosted as Tor hidden networks offering escrow services between buyers and sellers trading in Bitcoin or other cryptocurrencies, usually for marketing of drugs or related illegal / regulated goods; Agora was one of the most common DNMs. Agora was a darknet market that hosts on the Tor network itself, launched in 2013 and due to some reasons it was shut down in August 2015. In this paper we propose analysing the trade in a particular Dark Web Market (Agora) using various clustering and classification techniques like K-means Clustering, K-medoid Clustering, Decision Tree and Bayesian Classification.

HEALTHCARE CHAT-BOT SYSTEM USING DECISION TREES

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The chat bot is a communicative agent that simulates an intelligent conversation by a computer program. It can acquire user input in many ways such as text, speech, emotions, etc... Several tools are required for this reason. The chat-bot is simple to use. When going for health checks people need to book prior doctor appointments a couple of days before and patients now say it is difficult to find a doctor, and combined with the rising physician attrition rate it will be extremely limited in terms of healthcare professionals to handle such new patients. A medical chat-bot provides semi-finished symptomatic diagnosis and is used for hospital doctor appointments. More assistance can be provided for more diagnostic tasks, such as the place, duration, intensity of the symptoms and comprehensive symptoms. In short term the symptom recognition and disease diagnosis of the chat-bot could be significantly improved. The potential trend of technology is that people will spend time on messaging apps more than ever. Thus, there is a wide variety of scope for medical chat-bots. For a medical discussion, the distance is not significant. The performance of a chat-bot can be improved by adding more vocabulary to the database so that many illnesses can be dealt with by the medical chat-bot.

Keywords: *Decision Tree, Chat-bot, Healthcare, Machine Learning, Artificial Intelligence*

WIRELESS SENSOR BASED SMART MEDICARE SYSTEM

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It is very essential to continuously monitor the unconscious/coma patients to understand their health condition. Monitoring and alerting the medical person, when the comatose gains consciousness using motion detection system. We used two sensors for monitoring the health of the patient. Temperature is used to monitor the body temperature of the patient, Eye blink sensor to find the movements in the eyes of the patient. This system will be helpful in assisting the doctor about the health condition of the patient and alerting the doctor whenever care is required. The proposed system will assist the doctor by giving an alarm about the health condition of the coma patient, when the set of sensor values are out of the normal range. These results are displayed on the computer using IoT system.

Keywords: *ECG(Electrocardiography),BSN(Body Sensor Networks)*

EFFECTIVE RESOURCE SEGMENTATION FOR CENTRALIZED-RAN IN 5G NETWORKS

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The technology used in telecommunication system is evolving rapidly to meet the growing demand of clients. The 5G cellular network, intended to house enormous number of IoT and other internet enabled end user devices with low latency. As the number of users increase in the system it becomes more difficult to manage resource allocation. Therefore, the implementation of 5G network requires an efficient approach towards management and segmentation of resources. Use of Centralized Radio Access Network (CRAN) is proposed because of its efficiency to handle highly dense networks. Coordination among the resources as well as huge number of user devices is quite a problem due increased complexities. In this paper we propose a solution which could efficiently handle the resource allocation problem with a learning based RA technique that uses Random Forest Algorithm. This technique takes various parameters as input, then predicts the Code and Modulation Schema (MCS) which should be used for establishing connection between end user device and the Remote Radio Head (RRH). This technique is efficient, compared to the conventional technique which uses Channel State Information (CSI).

Keywords- *MCS, RRH, CRAN, End User*

PLANT DISEASE IDENTIFICATION AND PREVENTION USING IMAGE PROCESSING AND INTERNET OF THINGS

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For over a decade now, agriculture has been the key source of income in India. In a country like India, which is developing now, agriculture provides a huge number of employment opportunities. According to a study, a huge population of the country, around 60-70% of the country depends on agriculture. Most of the work related to farming in India is being done manually because most of the farmers lack the technical knowledge required to do it in a modern way. Pesticides are being sprayed presently on the plants by the farmers but it will have bad effects on the people who consume them. Farmers have no proper idea of what type of crop can be grown on the type of soil they are working on. When different types of diseases affect the plants, where the main part of the plant that gets affected is the leaf, they will suffer a huge loss economically. There will also be a significant decrease in the production of the plants. A leaf is one of the most important parts of the plants. The most challenging job for both the

farmers and researchers is the identification of the disease that has affected the leaf. For identifying the plant diseases, farmers need to adapt to too many modern techniques. Through this paper, we will overview various plants and their illnesses and the different propelled procedures that can be utilized to identify these diseases.

Keywords – *Agriculture, plants, diseases.*

SECURE WIRELESS DATA TRANSFER ALGORITHMS FOR LARGE SCALE WSN NETWORKS

C.JOTHI KUMAR, PRANSHU PATIDAR, VISHAKHA DIKSHIT

Now-a-days wireless sensor networks are finding their way into various fields due to their ease of use and provided level of security . In this paper, we have discussed about the different mechanisms and algorithms through which the security and integrity can be achieved in Wireless Sensor Networks, and also listed the drawbacks of the existing system, We proposed the system which will increase the confidentiality in the data transfer of WSN Networks. The data sent through wireless sensors needs to be secured in order to retain data confidentiality. Most of the data sent through them are confidential and sensitive to organisation. To achieve security from attackers, various encryption and decryption algorithms are used. The traditional algorithms take lots of time in decryption at base station. Every node has limited memory and capacity. This problem leads to wastage of time and energy. In this paper we propose encryption using modified RSA algorithm which provides more security than existing RSA algorithm. Also we are using asymmetric key encryption. In Asymmetric Encryption keys are in the form of pairs. In which one key is used to perform encryption, and another one is used to perform the decryption. This method will increase the confidentiality during the data transfer for large scale WSN Networks. This will significantly reduce time and energy consumption by intermediate nodes.

IOTBASED GARBAGE AND WASTE COLLECTION BIN OVERFLOW INDICATOR

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Waste the board is the basic issue that the world deals autonomous of the case of made or making nation. The issues in the waste organization are that the waste holder at open spots advances beyond time before the start of the accompanying cleaning process. It therefore prompts various dangers, for instance, awful aroma and repulsiveness to that spot which may be the basic driver for spread of various diseases. To avoid all such unsafe circumstance and keep up open neatness and prosperity this work is mounted on an astute refuse system. The standard subject of the work is to develop a sagacious shrewd garbage prepared system for a genuine refuse the board .This paper proposes a sharp prepared structure for junk opportunity by offering a caution hint to the large city server for minute cleaning of waste with legitimate check reliant on stage of waste filling. This method is helped by the ultrasonic sensor which is interfaced with Arduino UNO to check the degree of refuse filled in the dustbin and sends the caution to the normal web server once if trash is filled . The gas sensor and the fire sensor are utilized to look at the break of fire

and it take a gander at the closeness of any risky gas over the development holder. The gas sensor and the fire sensor are used to take a gander at the break of fire and it look at the closeness of any hazardous gas over the buildup holder. The whole system is kept up by an embedded module joined with sensors and IOT Assistance. The continuous status of how waste collection is being done could be watched and fixed up by the region authority with the guide of this system. Despite this the essential therapeutic/trade measures could be balanced. A web application is made and associated with a web server to intimate the alerts from the microcontroller to the urban office and to play out the remote checking of the cleaning system, done by the workers, thusly decreasing the manual strategy of watching and affirmation.

Keywords – *IOT Garbage, Arduino, Ultrasonic sensor, wireless, Zigbee*

ANALYSIS OF EMPLOYEE PERFORMANCE AND PREDICTION SYSTEM

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Data mining applications are becoming a more common tool in considerate and cracking educational and administrative problems in higher education and job profession. One of the common problems in a job sector or higher education is the evaluation of instructors' performances in a course or employee's performance in a job sector. The most widely applied method to evaluate the performance is through feedback of performance and details kept by the company or institution. In general, there are many different methods and algorithms possible to use for building a classifier model. The classifier system has been applied for predicting the employee performance using different machine learning techniques like SVM, random forest and decision tree system etc. The optimal performances of each of the algorithms are considered and prediction is made accordingly. Different features and attributes of employees that are essential in governing employees' performance are extracted using feature extraction method. The datasets in the survey are found to be gathered from the HR analysis of specific company through HR datasets, questionnaires, feedback forms and the employee turnover probability is predicted. The performances of these models are evaluated on the test data. After study of existing work, the outcomes and challenges are identified and conclusions are drawn accordingly

KEYWORDS: *Employee Behaviour, Performance, Attrition, Data Science, Data Analytics, Machine Learning*

DIABETIC RETINOPATHY DETECTION USING CONVOLUTIONAL NEURAL NETWORK

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Patients suffering from prolong diabetes generally suffer from a disease called Diabetic Retinopathy. Diabetic Retinopathy has been on a rise across the globe due to the increase in the number of diabetic patients. The detection of this disease at an early stage has become vital as it prevents it from escalating high sugar levels in diabetic patients causing harm to the Retina. This damage along with other factors leads to a gradual loss of sight and eventually blindness. An early analysis of Diabetic Retinopathy will help in controlling the progress of the disease. A dilated eye exam, fluorescein angiography, and OCT are parts of the traditional screening process. An automated classification of Diabetic Retinopathy

using images is a difficult job due to the microscopic variability of the appearance of different classes of diabetic Retinopathy. In recent years convolutional neural network (CNN) has been increasingly employed for the task of automatic as well as semiautomatic image classification. Through this paper, we aim to classify various fundus images of the eye into various classes of diabetic Retinopathy.

Keywords—*Diabetic Retinopathy, Retina, fluorescein angiography, Convolutional Neural Network*

IMPLEMENTING TRANSACTION POOLS WITH DEX USING A CUSTOM BLOCKCHAIN NETWORK

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Blockchain is a decentralized ledger or network that stores information such as transactions that is publicly or privately shared across all the nodes of its network. It's fair, democratized and has no central point of failure. A cryptocurrency on the other hand is a form of digital media exchange. It has three main aspects which are blockchain, wallets and mining. Miners in the network can add transactions to the transaction pool after getting authenticated by the Proof of Work (POW). This paper proposes a customized transaction pool in the segment of mining transactions. This includes creating a custom cryptocurrency, transaction pools and deploying it as an application. The transactions are exchanged using Decentralized Cryptocurrency Exchange (DEX) which will also be implemented in this paper.

Keywords— *Blockchain, DEX, POW, transaction, distributed ledger, financial currencies, cryptocurrency.*

SENSOR FAILURE PREDICTION AND RELIABILITY

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Sensors are vital components of the manufacturing industry due to their various applications in the production, chemical and healthcare industries. Therefore, to obtain better results and facilitate monitoring, it is of utmost importance to detect sensor faults and their anomalies as early as possible, and to test its reliability and functionality upon detection and subsequent repair. We use sensor data available from industrial usage, and create an Artificial Neural Network system to carry out prognostics for the next immediate occurrence of a sensor failure, by detecting anomalies in advance in its data. In industry 4.0, several techniques are

used, like the Feed Forward Neural Network system that utilizes the fact that measurements of a sensor are not random, and hence correlate to some kind of regular patterns. Classical machine learning techniques like Regression Trees, and algorithms like Random Forest and Support Vector Machine are chosen for comparison with Artificial Neural Networks to establish maximum possible efficiency and accuracy for the latter in the predictive process. These methods are widely used for prediction and classification problems in many application areas due to which they have been specifically chosen to perform the same tasks that the Artificial Neural Network is exposed to. Therefore, the system uses predictor and clustering based methods with available datasets to identify sensor failures, and creates a new model for forecasting the occurrence of the next sensor failure.

Keywords: *Industry 4.0; Machine Learning; Prognostics; Artificial Neural Networks, Feed Forward, Sigmoid Function*

PREDICTIVE MAINTENANCE ON NASA TURBOFAN

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This paper aims to perform predictive maintenance on a Turbofan using the NASA Turbofan data-set to predict the chances of failure by calculating the Remaining Useful Life (RUL) of the device. It aims to build a model that can read the data from the repository and build a model that can accurately classify whether an engine has chances of failure or not .This survey paper will show the algorithm and results of this project.

Keywords: *predictive maintenance, Turbofan, device optimization, machine learning, failure prediction, XGBoost.*

FUEL THEFT PROTECTION AND MANAGEMENT SYSTEM

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In the development process the some of the important features of the vehicle like mileage of the vehicle , speed of the vehicle and fuel level by allowing it to detect the level and preventing all the illegal that are occurring through sensors. This system can implemented by connecting all the sensors through microcontroller. It will be a modernized technique in all vehicles. There is a huge loss for the consumers due to the high costs, thefts are increasing day by day. The increase in the fuel consumption may also leads to depletion of the fuel resources and causes global warming. So if the fuel management is inefficient or any fuel loss occurs such as stealing then it will become a burden to the owner to buy the fuel, it increases the global warming. In our system to overcome these issues we are using the level sensor, gas sensor, GPS

Module and a motor driver. Our system tracks the fuel level whenever the fuel cap of the vehicle is opened or closed. It sends the information about the fuel level, whether the cap is opened or closed and location of the fuel. A Motor driver is installed in our device which automatically reduces the speed of the Engine when the fuel level is low and it automatically sends the location of the near by fuel station to the driver, so that he can manage the fuel left out.

Keywords:*Arduino, Global System for Mobiles(GSM), Global Positioning System(GPS), Gas Sensor, Motor Driver , Motor , Level Sensor , Android Application*

COMPARITIVE PREDICTION OF NETWORK ATTACKS USING BIO-INSPIRED MACHINE LEARNING ALGORITHM

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Most of the times, data is created for the Intrusion Detection System (IDS) only when the set of all real working environments are explored under all the possibilities of attacks, which is an expensive task. Network Intrusion Detection software shields a system and computer network from staff and non-authorized users. The detector's ultimate task is to build a foreboding classifier (i.e. a model) which would help in differentiating between friendly and non-friendly connections, known as attacks or intrusions. This problem in network sectors is prevented by predicting whether the connection is attacked or not attacked from the dataset. We are using i.e. KDDCup99 using bio inspired machine learning techniques (like Artificial Neural Network). Bio inspired algorithm is a game changer in computer science. The extent of this field is really magnificent as compared to nature around it, complications of computer science are only a subset of it, opening a new era in next generation computing, modelling and algorithm engineering. The aim is to investigate bio inspired machine learning based techniques for better packet connection transfers forecasting by prediction results in best accuracy and to propose this machine learning-based method to accurately predict the DOS, R2L, U2R, Probe and overall attacks by predicting results in the form of best accuracy from comparing supervised classification machine learning algorithms. Furthermore, to compare and discuss the performance of various ML algorithms from the provided dataset with classification and evaluation report, finding and analysing the confusion matrix and for classifying data from the priority and result shows that the effectiveness of the proposed system i.e. bio inspired machine learning algorithm technique can be put on test with best accuracy along with precision, specificity, sensitivity, F1 Score and Recall.

Keywords— *Intrusions, Machine Learning, Bio-inspired, Dos, R2L, U2R, Probe*

CONFIDENTIAL KEY PRODUCTION FOR SECURE PACKET TRANSFER IN MULTI-NODE MESH TOPOLOGY

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This paper speaks about the key age trouble within the manner transfer passage; wherein on the spot channel between the key productions terminals is not present. We propose a powerful key age plot that accomplishes a drastically bigger key figure rather than instantaneous channel copy approach. In comparison to current plans, there's no requirement for the key generating terminals to get related perceptions in our plan. Secure key dissemination plans for gathering correspondences permit building up

a protected multi cast correspondence between a gathering administrator and gathering individual through a problematic communicate channel. The improved productivity for key administration is acknowledged by intermittently invigorating all open private key matches just as any multicast enters in every one of the hubs utilizing just one recently created capacity communicated by the key generator element. The article arranges, investigates and thinks about the most critical key appropriation plans, by taking a gander at the particular key dispersion calculations, at the pre conveyed mystery information the board, and at oneself recuperating components. It surveys polynomial-based calculations, exponential number juggling based calculations, hashbased methods, and others. Propose order of plans dependent on the applied cryptographic natives.

Keywords—*key production, secure key distribution, private key and public key, cryptographic primitives.*

PREDICTION OF LOAN APPROVAL USING LSTM

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Nowadays loan approved prediction, plays an important role for machine learning tasks. The loan is a very important product of the banking sector. All the banks are trying to convince customers for applying to their loans. However, there are some customers who behave negatively after their application is approved. To prevent this problem, banking sector have to predict customer's behavior using deep learning techniques. The analysis of dataset to capture several information's like, applicant's name, age, gender, variable identification, missing value treatments etc. So, Long Short-Term Memory network is to identify the classification problem and to categorize data from priority information by using python. The main objective is to predict whether assigning the loan to particular person will be safe or not.

VEHICLE COMMUNICATION USING LI-FI TECHNOLOGY TO AVOID ACCIDENTS

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Vehicle to vehicle data transmission, we present the initial stage and designs and result of prototype using light fidelity. Vehicle to vehicle communication is the most effective way to avoid accidents and collisions between the vehicles. Due to heavy increase in the usage of the vehicles, the accident rate has been increasing rapidly. So, this project proposes an efficient way to decrease the accidents. This vehicle to vehicle data transfer uses light fidelity (Li-Fi) technology, a comparatively new technology that was developed and implemented in recent years, but this li-fi needs more systematic analysis on various applications and its sustainability for outdoor vehicular networks and data

transmission. Vehicle to vehicle communication is the best solution either in the effectiveness and cost to implement in order to reduce vehicle collisions. In this project a li-fi transmitter and receiver are used to transmit data between vehicles. We use led bulb for transmission of data. The elimination protocols are used so that the complexity of li-fi gets decreased. The main aim of this project is to provide desired data transfer between the vehicles by using the transmitter and receiver mounted on the vehicles.

Keywords—*Light Fidelity, Visible Light Communication, Arduino, Frequency, Outdoor communication*

PERSONALIZED NEWS RECOMMENDATION SYSTEM

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Online news system has gotten exceptionally well known as the web gives access to news stories from a great number of sources, far and wide. A key test of news sites is to assist clients with finding the articles that are intriguing to them. Right now, we present our exploration on creating customized news suggestion framework. For clients who are signed in and have expressly empowered web history, the proposal framework constructs profiles of clients based on their past snap conduct. To see how client's news interests change over a period of time, we originally started with a huge scale investigation of News clients click logs. In light of the log examination, we built up a Bayesian structure for foreseeing clients' present news interests from the exercises of that specific client and the news patterns exhibited in the action everything being equal. We consolidated the matter based on suggestion instrument which uses learned client profiles with a current collective component to create customized news proposals. The half breed recommended framework was conveyed in Google News. Trials on the live traffic of Google News site exhibited that the half and half strategy improve the nature of news proposal and expands traffic to the site.

Keywords-*Recommendation System, IDF, TIDF, Unigrams, Bigrams*

IMAGE STEGANOGRAPHY USING BAYESGAN

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Image steganography which is the practice of cloaking secret data in images using various techniques. There are many steganographic algorithms available but with the advancement of steganalysis algorithms and increase in computation power, there has been increase in threat in security of image steganography. Traditional statistical, spatial, transform based and other method specific techniques are not adequate to ensure security of image with recent advancement in steganalysis techniques. However with the introduction of GAN (Generative adversarial network) in image steganography which generates high capacity data hidden images and cannot be detected by statistical methods. Despite GAN's producing high

quality data hidden image still there is problem with training and efficiency of GAN's such as mode collapse and non convergence. Since then there has been many efforts to improve GAN such as WGAN, SGAN etc. In this paper we will introduce new method of steganography of image using BayesGAN. BayesGAN [1] avoids mode collapse and outperforms existing DCGAN, WassersteinGAN and DCGAN in various datasets.

Index Terms—*Machine Learning, Deep Learning, Image Steganography, GAN, BayesGAN*

ENERGY EFFICIENT SPECTRUM SENSING TECHNIQUES FOR COGNITIVE RADIO BASED WIRELESS NETWORKS

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Cognitive Radio is an adaptive and intelligent network technology that can detect available channels in a wireless spectrum and change parameters enabling more transmissions to run concurrently and improve radio operations. The spectrum is allocated by a regulatory organization and is not used all the time by licensed users which creates spectrum holes. Cognitive Radio allows secondary users to sense these spectrum holes and utilize them when the primary user is not active. It uses various techniques available to sense the unutilized spectrum. In this project we are going to analyze these available spectrum sensing techniques and discuss their implementation in an energy efficient way.

Keywords—*Cognitive Radio, energy efficient, spectrum sensing, wireless networks.*

A SMART APPROACH TO PORTFOLIO MANAGEMENT USING LSTM

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This work is aimed at analysing the efficacy of the Long Short Term Memory algorithm on adaptive allocation of financial assets which includes cash, stocks, bonds, mutual funds, by building a system that automates the process of recommending asset values based on improved risk-adjusted returns. A limited set of assets, such as stocks is chosen and then this system will perform fund risk analysis and risk management to determine how to optimally allocate funds to those assets. Our model estimates the correlation among the different assets and stochastically optimises the diversification of the assets for personalised recommendations. The agent is trained on both historic and real-time market data. After

comparing it's performance with traditional portfolio management algorithms we conclude that the LSTM model can generate recommendations which accounts for better profitability.

Keywords—*portfolio management, reinforcement, LSTM*

AUTOMATIC IMAGE COLORIZATION USING DEEP LEARNING

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Image colorization is a fascinating topic and has become an area of research in the recent years. In this project, we are going to colorize black and white images with the help of Deep Learning techniques. Some previous approaches required human involvement or resulted in the development of desaturated images. We are building a Deep Convolutional Neural Network (CNN) which will be trained on over a million images. The output generated by the model is fully dependent on the images it has been trained from and requires no human help. The images are taken from different sources like ResNet, Reddit, etc. The model will include many hidden layers to make the output more accurate. This will be a fully automatic model and will produce images with accurate colours and contrast. Finally, the goal of this project is to produce realistic and colour accurate images that can easily fool the viewer. The viewer wouldn't be able to differentiate between the photo which the model produced and the real photo. Our project has wide practical applications like historical image/video restoration, image enhancement for better interpretability, frame by frame colorization of black and white documentaries, etc.

SMARTDOMESTICGASLEAKAGEDETECTIONUSING IOT

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"In recent years there has been rapid development in technology which has made human life easier in several aspects. LPG is a need of every household but many accidents happen every year due to domestic gas leakage, so it should be used carefully. As safety and security is the most important factor we have proposed a LPG leakage detection and smart gas booking system. In our daily life we don't know exactly the status of LPG gas completion which leads to inconvenience. Along with the leakage

detection weal so designed feature of sending message to user about the cylinder requirement. In this system MQ-2 is gas sensor used to sense the LPG leakage gas and has high sensitivity to LPG and also response to natural gas. It offers quick response time and accurate detection. The additional advantage of the system is that it continuously monitors the level of the LPG present in the cylinder using level sensors and reduces the workload of gas agency.”

Index Terms—*Alarming framework, LPG and Propane, Things Speak Cloud*

EXPERIMENTAL ANALYSIS OF MACHINE LEARNING MODELS FOR ANTICIPATING AIR QUALITY INDEX

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World Health Organization (WHO) surveys that around 7 million individuals die each year from presentation to fine particles in contaminated in its 2018 yearly report. Introduction to these fine particles in contaminated air prompts illnesses, for example, coronary illness, stroke, lung malignant growth, interminable obstructive aspiratory sicknesses and respiratory diseases, including pneumonia. In this project, we attempt to gauge the air quality in a specific zone by utilizing ML strategies like, Support Vector Regression (SVR), Decision Tree Regression (DTR), Multiple Linear Regression (MLR) and Random Forest Regression (RFR). We then try to find out which ML model performs better at predicting the air quality accurately. Then we compare these ML models by judging their performance on various error metrics such as Coefficient of Determination (R²), Root Mean Square Error (RMSE), Mean Absolute Error (MAE) and Root Mean Square Logarithmic Error (RMSLE). The trial results demonstrated that the performance of SVR was the worst. MLR and DTR both performed satisfactorily well. RFR performed the best among all other regression models.

Keywords – *AQI (Air Quality Index), Pollution, Machine Learning, Algorithms, Regression Models, Error Metrics.*

A SYMMETRIC CRYPTOGRAPHIC TECHNIQUE TO SECURE PERSONALIZED DATA WITH CHAOS

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Medicinal information is stored as a database in clinics. These therapeutic databases store information that could be anything from complete body check up to lab reports and conclusions identified

with the patient. Many assaults are being carried out in many companies such as network attacks where the data integrity is lost. The information that is available in the medicinal database is sensitive, confidential and the availability of this information is restricted to approved, authorized people. So, in this system we have also focussed on implementing Shannon's Property where the property has two stages namely, confusion and diffusion. Confusion is the first stage that concentrates more on converting the text into its ASCII value. Diffusion is the second stage that takes the output of confusion and modifies the position of the encrypted text. Furthermore, the framework additionally shows that this patient-controlled encryption takes less computational time, and can be applied when immense data has to be verified.

Keywords:*Personal Health Record (PHR), Information Privacy, Data Security, Chaotic Map, Confusion, Diffusion*

HUMAN SAFETY MONITORING SYSTEM USING IOT

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The primary purpose of this project is to ensure the safety of human beings in case of emergency situations that might include both health related emergencies and life threat from the external sources through constant monitoring of the person using a device built using IOT techniques. The device constantly monitors the person's pulse and position using sensors and its readings. The code is written such that if any of the values cross the threshold readings, then the device automatically alerts the surroundings police stations and sends a s.o.s message to the victim's guardian through message. The device is also equipped with fake symptom detection technology and an emergency button to improve the accuracy of the device.

Keywords: *Arduino, Global System for Mobiles(GSM), Global Positioning System(GPS), Pulse Sensor, Temperature Sensor, Flex Sensor, Motion Sensor, Buzzer, Switch*

GENERATING IMAGES USING DESCRIPTIVE TEXT VIA ADVERSARIAL TRAINING

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Generative models are being utilized to synthesize realistic data in a highly versatile manner. Training neural networks to generate the image with specific conditions enables us to make an image we require just by giving an input. This paper aims to understand how generative models based on adversarial training work and how images are generated, that appear to be real but are generated via a higher level of the neural network when given an input of encoded textual descriptive data. The

architecture utilized is called Generative Adversarial Networks that uses game theory to train a neural network to generate images that are indistinguishable from the real ones. The inputs are conditions based on which output will be generated as contrasted to older architecture that takes in noise as input. We use Pytorch which is an open-source neural network library written in Python, built upon TensorFlow to build our architecture. We observe a higher accuracy when we use GANs architecture when compared to others like AutoEncoders.

MASK R-CNN FOR TEXT DETECTION IN IMAGES

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Object detection finds its usage in a myriad of realms, from object tracking to face-detection. One of its emerging uses is the acquiring of descriptive metadata for electronic comics hosted on the web, in order to facilitate efficient searching and cataloguing. This paper explores the Deep Learning based object detection method, Mask R-CNN, and its performance with respect to the detection of different object classes within the chosen dataset. The scope of investigation has been restricted to object classes commonly encountered in comics, which are, panels, text, character faces, and character bodies.

Keywords—*Object Detection, Deep Learning, Mask R-CNN*

ENERGY-EFFICIENT CLUSTERING FOR WIRELESS SENSOR NETWORKS

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Cognitive radio has been proposed as a promising way to effectively utilize the scarce spectrum resources. A cognitive radio sensor network (CRSN) is a wireless sensor network that is equipped with cognitive radio capability. Clustering is a popular technique that can be applied to wireless sensor

networks, although it has been proven to be a challenge to implement it in CRSNs. Moreover, few proposals have successfully applied energy efficient clustering techniques in CRSNs. Therefore, with the aim of increasing energy efficiency, network lifetime, network stability, and optimal cluster-head selection process, this paper proposes a novel energy efficient clustering based on cooperative spectrum sensing (ECS) for CRSNs. The proposed ECS scheme utilizes the concept of pairing among sensor nodes and switches between Awake and Sleep modes for energy efficiency. A comprehensive simulation in MATLAB was carried out to validate the proposed method. The simulation results show that, compared with conventional methods, the proposed method is more energy efficient and that the overall CRSN's lifetime is prolonged.

Keywords—*Cognitive Radio, Wireless Sensor Networks, Clustering*

ENHANCED IMAGE VISION AND RESOLUTION DURING LOW LIGHT CONDITIONS USING GANS

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Low light computer vision is an arduous task because of the low signal to noise ratio and less photon count. This means that the images captured in low light experience noise, which can result in blurring of the image. Although there are multiple techniques to overcome the noise and blur, their results are bounded in undue conditions as in there is a drop in the video imaging at night. This low light enhancement is a daring task as there are multiple factors like brightness, de-noising, de-blurring, contrast must be handled at the same time. Even the development of a CNN has proved to perform poorly on such data. This paper uses a technique to take care of this issue using GANs. Our technique gives a platform to enhance the image captured in low light and increase its resolution giving out an enhanced super resolute image. To support the low light image processing, we have used a dataset of low-light images. This method can give promising results on the dataset, and display a break for the future work.

CUSTOMIZED NETWORK SECURITY FOR CLOUD SERVICES

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Present day conveyed figuring stages subject to virtual machine screens (VMMs) have a combination of complex associations which present numerous framework security vulnerabilities. In order to guarantee mastermind security for these associations in conveyed processing, nowadays, different middleboxes are sent at front-part of the bargain or parts of middleboxes are sent in disseminated figuring. In any case, the past is inciting astounding cost and the board complexity, and besides missing

of framework security protection between virtual machines while the last does not enough foresee framework ambushes from external traffic. To address the recently referenced challenges, we present a novel changed mastermind security for cloud organization (CNS), which not simply keeps attacks from external and internal traffic to ensure orchestrate security of organizations in appropriated registering, yet furthermore bears revamped organize security organization for cloud customers. CNS is completed by modifying the Xen hypervisor and shown by various tests which exhibiting the proposed plan can be honestly associated with the expansive helpful headway in cloud enlisting.

REINFORCEMENT LEARNING USING CONVOLUTIONAL NEURAL NETWORK FOR GAME PREDICTION

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The paper presents a deep learning model for playing video games with high level input using reinforcement learning. The games are action limited (like snakes, catcher, air-raider etc.). The implementation is progressive in three parts. The first part deals with a simple neural network, the second one with Deep Q network and further to increase the accuracy and speed of the algorithm, the third part consists of a model consisting of convolution neural network for processing image inputs and fully connected layers for estimating actions according to the inputs where the idea of taking action is based on Q-learning (model-free reinforcement learning). The results are further analysed and compared to provide an overview of the improvements in each methods

MORPHOLOGY BASED LUNG NODULE DETECTION USING MACHINE LEARNING

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Early detection of lung cancer from computed tomography (CT) scans is critical in assisting radiologists with the help of Computer-aided detection(CADe) of pulmonary nodules. One of the significant reasons of death in India is Lung Cancer. Various data analysis and classification techniques have been used for the diagnosis and detection of lung cancer. Since the cause of lung cancer is not discovered, the prevention is impossible. Early detection is the only way to cure it. Hence, lung cancer

detection system using image processing and machine learning is used to classify the presence of lung cancer in a CTimage. Patient CT scan images are classified in normal and abnormal. The abnormal images are subjected to segmentation to focus on tumor portion. Classification is done on features extracted from the images. This paper proposes an efficient method to detect the lung cancer and its stages successfully and also aims to have more accurate results by using KNN and Image Processing techniques.

Keywords—Early cancer detection, pulmonary nodules, image processing, forecasting, segmentation, feature extraction, KNN technique

COLLABORATIVE SECURED DATA MANAGEMENT SYSTEM USING BLOCKCHAIN

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The proposed system uses blockchain technology to provide data integrity to the user of the network. Blockchain enables security in which data integrity can be checked without revealing the information of the user or the actual data. The proposed architecture consists of a Data Owner, Data Auditor and users. The user is the person whose data is in the system, Owner is the person who owns the database and auditors are the technicians who check the data if any data is compromised and make sure the data integrity is intact. The entire data is in the form of blocks and the technology of ring signatures will be used to provide authentication. This will provide a way to check the data without unveiling the original signer of the data block. Also the information of the members present in the ring signatures group are kept confidential. This provides total security both to the data and user of the database.

Keywords—Blockchain, Auditing, Encryption, Data Management, etc

RAIN WATER HARVESTING USING IOT

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The major solution to the water scarcity and management problem is rain water harvesting. Rain water harvesting done nowadays in many ways but we need to come up with a better solution to rain water harvesting so as to save the human energy and time as well. The solution for this is by introducing the application of Internet of things in the rain water harvesting process. The project subjects to the design of agriculture farm majorly for the plane region which can well utilize by the farmer to sort out the

problem of water scarcity for crop growth. The farmers nowadays are facing lots of problem in agriculture. In the following project, we have used sensors such as proximity level sensor, water level sensor, pressure sensor to get most of the water harvested. The project includes a small portion of a farmer land, a water storing pit, a lid to that pit, crops, etc. When the rain falls the portion of the land starts filling with water. Once the water reaches the certain level the water level sensor alarm beeps and the water then is transferred to a pit connected to it. The pressure sensor works when the rain falls due to the pressure of water at the top the lid to the pit opens and the proximity alarm also gets into action so as to aware the person coming in certain radius of the pit to prevent them from falling into the pit. So this is a technical and an efficient way to save water. A pond is also made near to the field in which the water is transferred from the field and then from pit the cleared water is sent to the main pond from the which the water is motored back when needed. The nutrients of the soil also play an important role so side by side the nutrients of soil is monitored and sent to the user with the help of which the user will get updated about the nutrients and can fertilize the land accordingly.

Keywords- *Arduino; GSM (Global System for Mobile); IOT (Internet of Things); Sensors*

DESIGN AND IMPLEMENTATION OF A CHILDREN SAFETY SYSTEM USING IOT

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At this moment structure for growing youths' security is proposed. The accentuation is on the consistently course from home to class and the different way, usage of school transports. IoT perspective is manhandled together with different constraint strategies for instance. RFID and GPS, in order to structure a response for gatekeepers prepared to ensure their youth's following the key steps to class or home, for instance taking the school transport and entering school or leaving school and entering the school transport. At this moment pertinence of RFID advancement powerful after capacities is attempted in youths' following and seeing during their excursion to and from school by school transports. The proposed course of action is analyzed with respect to advancements and building and the essential model is presented. Finally a test arranges is needed to check the correct movement of the system

DETERMINING THE IMPACT OF SOCIAL MEDIA ON MENTAL HEALTH USING CONVOLUTION NEURAL NETWORK

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The Image-Processing field has drastically risen in the past few years which has led to development of such an effective system which can help capture the human emotion in a much simpler way. Thus, we need an automated system that captures facial images of human beings and analyse them, for effective detection of depression. We present the development of a system using deep convolutional neural networks (CNNs) for analysing mental health of different age group of peoples who use social media. This system will be trained using the facial features of positive and negative facial emotions. To

predict depression, a video of the human being is captured, from which the face of the person is extracted. Then facial features and classification have done using convolutional neural networks. The level of depression is identified by calculating the amount of negative emotions present in the entire video. Finally, we evaluate the system in terms of classification accuracy and speed.

SMART HOME WITH ANYTIME ACCESS USING IOT AND CLOUD COMPUTING

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IOT has a great role in today's world. It is replacing many current systems we have. Many things that used to work with human effort are being replaced with the help of IOT. Smart Cars, Drone Deliveries, Home Assistants etc. are great example of this. Smart Home is one of those applications. Smart Home basically controls all types of activities by a tap on the phone. Smart Home is automation of Home devices. Generally, all switches are conventionally turned on/off physically. But with Smart Home, it can be done with a tap on the home. But Smart Home is not just about Switching on/off lights. It is to ensure that we have access to our devices and we also can maintain security in our house. Many a times, there can be a theft in the house. In that case, If systems detect a Burglar, then the occupants can be alerted in time. This also comes under Smart Home. A home is smart if it can be controlled even from outside. With current models, it is available to access the home system using Bluetooth or Wi-Fi Connection directly with devices. But as a smart device, we should be able to access home devices even when we are outside the house. This way, we can really monitor the house. This can be achieved using cloud computing. A cloud service is available for all kinds of devices.. Also, with this, we will make sure that the security of data and tampering of such will be detected easily. We are aiming to use Firebase cloud service of google for Cloud service. Google provides best cloud service and it is easy to use. It is easy to access and so it is easy to use. Smart home also requires a smart appliances such as smart refrigerator or smart air conditioner . As we are planning to construct a prototype of smart fridge which have various advantages such as it can sense the amount of milk, quantity of eggs present in the fridge and if milk or eggs are empty it can sense it and add it to the shopping cart of the users. It can automatically sense that the vegetables present in the fridge are fresh if they start decaying it sends message to the user. It can sense that if fridge is properly closed if not properly closed it send the message to the user. It can constantly tell about the temperature of the fridge to the user

KEYWORDS: arduino, nodemcu-esp8266 android, Cloud firebase

HOME AUTOMATION USING BRAIN COMPUTER INTERFACE

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There are a few people endured by Home Automation, a lack infection which causes them immobilization of their body parts, they are not ready to move, talk and a few people can't move even their head. Typically, Password validation is required for a few applications like Locking, bank logins and so forth.,password verification can likewise have the option to utilized by Paralyzed individuals through

Mind wave portable. Mind wave portable takes a shot at the guideline of BCI (Brain Computer Interface) which screens EEG waves from the Brain. It secures mind flags and makes an interpretation of them into directions that are handed-off to yield gadgets that complete the ideal activity. It depends on EEG. EEG – Electroencephalography which screens the Electrical property of the Brain along the Scalp (Non-intrusive). An EEG records cerebrum wave designs. Little plate (Electrodes) are set on the scalp, and afterward impart signs to a PC to record the signs to a PC. Electrical movement in the mind makes a conspicuous example. Our work helps them to operate the various home appliances with the help of eye blink. This system is having a core system as Arduino In this application. Appliances are switched on and off by having one blink. In this system, priority is set in order of light and fan.. We can add more appliances by giving furthermore order of priorities.

Index Terms -- Brain Computer Interface (BCI), Electroencephalogram (EEG), Eye blink and MATLAB.

DOOR UNLOCK SYSTEM FOR REGISTERED VEHICLE USING OPTICAL CHARACTER RECOGNITION (OCR)

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Due to the exponential growth in the number of vehicles used in cities and towns is leading to management overhead of vehicles. So for a guard in any premise or in the toll road people have to check the vehicle plate and decide whether he/she is authorized to go through or not. So all of this takes plenty of human efforts and time to lock and unlock manually again and again. This paper deals with those vehicles which are already registered under any home or any organization. When any registered vehicle comes in front of the door we have a camera attached to the door which will read the vehicle plate number. Then we have Raspberry pi 3 board with Raspbian OS in which camera and DC motor are attached where the OCR(optical character recognition) algorithm along with rest of the python code that will detect the vehicle plate in machine readable language and later the decision will be made whether to open the door or to keep it closed.

Keywords: **OCR (optical character recognition), ANPR (automatic number plate recognition), Raspberry pi 3, camera, DC motor, Camera.**

EMOTION RECOGNITION AND REGULATION USING MULTIMODAL SYSTEM

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Older age is normatively associated with losses in cognitive, physical and social domains. Detection of emotion of people at old age homes is therefore important, as it can help suggest ideas and ways to tackle everyday life muddle. This work proposes a model to detect the emotional state of the people by facial

expressions and speech. The emotion, if detected to be negative, will capture an image and send it to the helpers directing their attention towards the individual. The system will then request a name and display the history, hobbies and likings of the individual from the database to help regulate the emotion of the individual.

Keywords—Emotion recognition, Facial expressions, Speech, Emotion Regulation, Old age individuals

MALICIOUS APPLICATION DETECTION IN ANDROID USING MACHINE LEARNING

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As of late, the uses of advanced mobile phones are expanding relentlessly and furthermore development of Android application clients are expanding. Because of development of Android application client, some gatecrashers are making vindictive android application as instrument to take the delicate information and data for fraud and misrepresentation portable bank, versatile wallets. There are such a large number of malevolent applications discovery instruments and programming are accessible. Be that as it may, a viably and productively vindictive application recognition device expected to handle and deal with new complex pernicious applications made by interloper or programmers. In this paper we are Utilizing Machine Learning approaches for distinguishing the malignant android application. First we need to assemble dataset of past pernicious applications as preparing set and with the assistance of Help vector machine calculation and choice tree calculation make up correlation with preparing dataset and prepared dataset we can foresee the malware android applications upto 83.2 % obscure/New malware portable application

VEHICLE NUMBER PLATE DETECTION AND RECOGNITION

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License plate location is a very important concept in vehicle license plate recognition for intelligent transport systems. Number plates can have different shapes and sizes along with different colours. The most common vehicle number plate in India have the background colour as yellow or white with the font colour black. Localization of number plate for vehicles in India has been discussed in this paper and the numbers have been segmented to identify them specifically. Our focus here is on two main steps; first is to find the number plate and second the segmentation of the number to identify them specifically. The main objective of this paper and project is to efficiently design and implement a method for License Plate Recognition (LPR) of Indian License Plates. This project presents an effective method of license plate location, segmentation and reorganization of the characters present in the located plate. We have manually acquired the images of various vehicles. Here for the detection purpose, we have used COCO-API RCNN and K-NEAREST NEIGHBOR ALGORITHM. Finally, single character is detected. The results show that the proposed method achieved accuracy of 80% higher recognition rate than the traditional methods.

KEYWORDS: License Plate Recognition(LPR), K-Nearest Neighbor Algorithm, Convolutional Neural Network

SMART MOBILE PERSONAL ASSISTANT

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Security has gone on to become an imperative part of the modern technological era since devices today not only face threats not only from viruses but also are vulnerable to malicious hackers, who may try to obtain confidential and unauthorized data. Methods such as iris recoil, facial and fingerprint recognition are some of the newly adopted methods. Fingerprint algorithms and authentication systems are now an integral part of any mobile phone. This paper aims to showcase a fingerprint authentication application that is built based on the Advance Encryption Standard (AES). Android is an operating system for smart phones developed by Google Inc and the Open application Alliance (OAA).This era is surrounded by technology. The smart phones have so much of capabilities. This paper deals with the development of an application in smart phones which will automatically open any mobile apps with help of external finger print device. In the study hardware and software development are utilized. Interface between fingerprint and mobile is connected with Bluetooth module

PPQA: A PRIVACY-PRESERVING DATA-SHARING PLATFORM

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In the clinical trials industry, it takes 1.2B dollars and 12 years to get a drug to market. This results in loss of life, and often as trials fail, loss of tremendous amounts of time and money. This can be solved by enabling data-sharing between competing parties to reduce the risk inherent in drug discovery. We contribute a novel platform called PPQA (privacy-preserving querying and analysis) which enables data-sharing, querying, and analysis for clinical trials data between multiple stakeholders. This platform has wide usage in various industries apart from pharmaceuticals too.

Keywords—clinical trials, data-sharing, privacy-preserving data analysis, differential privacy, multi-party computation

SPEECH EMOTION RECOGNITION USING PNN CLASSIFIER

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This paper suggests speech emotion recognition from speech signal based on features analysis and PNN-classifier. The system of recognition includes detection of speech emotions, extraction and selection of features, and finally classification. These features are useful to distinguish the maximum number of samples accurately and the PNN classifier based on discriminant analysis is used to classify the six different expressions. The simulated results will be shown that the filter-based feature extraction with used classifier gives much better accuracy with lesser algorithmic complexity than other speech emotion expression recognition approaches.

UTILIZING PROPELLED LOCATION AND ANTICIPATION SYSTEM TO ALLEVIATE THREATS IN SDN ENGINEERING

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The transformation of traditional energy networks into smart grids can help revolutionize the reliability, performance and manageability of the energy industry. However, there are severe security vulnerabilities to increased connectivity of power grid assets for bidirectional communications. In this article, we discuss Chi-square detector and cosine similarity approaches for attachment. Estimation of any divergence from real measurements is used. The cosine similarity matching method is found to be reliable to detect fake data injection attacks and other smart grid attacks. Once the attack is detected, system can take preventive action and alarm the manager to take preventative action to limit the risk Our theoretical analysis is corroborated by numerical results achieved from simulations

ACCIDENT IDENTIFICATION AND REPORTING SYSTEM USING IOT

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Accident Identification and reporting system using IoT to detect highway accidents using the help of pole mount street cameras and GSM module to send emergency notifications to the nearest police station and the nearest hospital facility. This system ensures that road accidents that happen in deserted areas or during night time is acted upon within the shortest period of time possible. We propose to learn anomalies by exploiting both normal and anomalous videos. To avoid annotating the anomalous segments or clips in training videos, which is very time consuming, we propose to learn anomaly through the deep multiple instance ranking framework by leveraging weakly labeled training videos ,i.e. the training labels (anomalous or normal) are at video-level instead of clip-level. In our approach, we consider normal and anomalous videos as bags and video segments as instances in multiple instance learning (MIL), and automatically learn a deep anomaly ranking model that predicts high anomaly scores for anomalous video segments.

STOCK MARKET PREDICTION

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The Stock Market is a challenging forum for investment and requires immense brainstorming before one shall put their hard earned money to work. This project aims at processing large volumes of data and running comprehensive regression algorithms on the dataset; that will predict the future value of a stock using the regression model with the highest accuracy. The purpose of this paper is to analyze the shortcomings of the current system and building a time-series model that would mitigate most of them by implementing more efficient algorithms. Using this model, anyone can monitor the preferred stock that they want to invest in; and maximize profit by purchasing volume at the lowest price and liquidating the stock when it's at its highest.

KEYWORDS: Stock Market, Forecast, Regression, Time-Series Prediction.

IMPROVING LIFESTYLE OF DISABLED PEOPLE USING IOT

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Building automation is becoming popular due to its numerous benefits. Building automation refers to the control of building appliances and domestic features by local networking or by remote control.

Automation is a technique, method, or system of operating or controlling a process by electronic devices with reducing human involvement to a minimum. The fundamental of building an automation system for an office or home is increasing day-by-day with numerous benefits. In our project, we are going to monitor the building by using the IoT. We use more sensors to monitor the building and all the information get by the sensors are transmitted to the user by using IoT. Based on the sensors output, the loads are controlled by Controller. The transmitters are placed near by the objects like TV, Fridge and the data get transmitted to the receiver receives the value and intimates in voice as TV or fridge.

Keywords—Arduino, home automation, IOT (internet of things)

HAND GESTURE BASED HOME AUTOMATION USING LEAP SENSOR

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In this world of abundant intelligent devices, with an aim to help the disabled, elderly and children communicate with the devices directly through gestures instead of the conventional switchboards we propose a system to make human hand tracking and controlling the household appliances possible in real time with minimal latency. The automated system developed until now was limited in the gestures made, not much supportive of the gestures made by the individual fingers and also slow in recognizing and computing the input parameters. We propose a method to solve these issues by using the LEAP motion sensor where we can input customized gestures via our fingers and increase the range of gestures made by the person. We also strive to increase the throughput of the system and provide high-performance in terms of recognition accuracy. Till now LEAP sensor was used in the field of virtual reality, augmented reality. In recent times LEAP sensor started to appear in Automation as it has some benefits over other sensors like KINECT, ACCELEROMETER, and GYROSCOPE which have limited gestures, high cost, slow computational speed, less accuracy, etc. A LEAP sensor has two cameras and three IR sensors with inbuilt support for four gestures such as circle, swipe, key tap, screen tap. Our objective is to include a customized gesture data set for LEAP and set the commands to control daily household devices. LEAP comes with a 150-degree field of view which helps for multiple gesture recognition. The amalgamation of LEAP technology with IoT devices can provide disabled people with a sense of autonomy.

PREVENTION OF MOTORCYCLIST WITHOUT HELMET USING IOT

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To prevent the motorcyclist from wearing a helmet which will help to reduce the number of accidents occurring nowadays because people don't wear a helmet while driving regularly. Every second people dies due to delay in medical help, or in the case where the place of accident is unmanned. We have the helmet section and the vehicle section. In the helmet, the RF transmitter will be attached which will be directly connected to the RF receiver which is in the vehicle section so only if the person wears the helmet then the ignition starts. Also, we have the alcohol sensor to check whether the person is drunk. If found drunk the ignition will stop and the vibration sensor to detect that there is an accident. GPS is incorporated to check the location of the accident and the message will be sent to the emergency contact with the location coordinates.

MONITORING OF WATER QUALITY IN AQUACULTURE USING INTERNET OF THINGS

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The system proposed in this work monitoring the water quality the water quality based on the internet of things (IOT).It consists of temperature sensors , pH sensor and flow sensor , Ultrasonic sensor . Which are monitored continuously and reference value is set .if the values go beyond the set values then automatic control is done by using a coolant motor the temperature is controlled , filter meter is using for turbidity , water meter is used for water level . In this system sensors are connected to IOT Gateway and it is connected with cloud server . The cloud server stores the data and values are displayed in the mobile app . In proposed system data are accessed through wifi network , which is connected to Arduino uno through serial peripheral interface . The software used is Arduino. The monitoring of water quality is important so that it can avoid damage the waves for living organisms and provide good environment for the species . This information is important for the development of aquaculture .since it allows sharing the different condition for breeding of aquatic organisms between different breeders and organisations .

BLOOD GROUP DETECTION USING DEEP LEARNING

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Division and tallying of platelets are considered as a significant advance that assists with separating highlights to analyze some particular ailments. The manual tallying of RBCs in minuscule pictures is an amazingly dreary, tedious, and off base procedure. Programmed investigation will permit hematologist specialists to perform quicker and more precisely. Examination of blood classification plays an imperative gathering in the restorative field for any treatment. False transfusion of blood will prompt numerous issues. This framework gives simple and quick methods for distinguishing proof of blood classifications and rhesus factor non obtrusively. Our structure is tried on a few genuine informational collections with various qualities. Blood classification is grouped dependent on the nearness and nonappearance of certain organic substances called antibodies and furthermore dependent on the nearness or nonattendance of acquired antigenic protein substances on the surfaces of the erythrocytes in the body. Along these lines by utilizing the optical properties of the antigens and the rhesus calculate present the blood, the blood gatherings can be ordered.

IMAGE ENHANCEMENT USING GENERATIVE ADVERSARIAL NETWORKS

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Mobile Photography has been brought to a significantly new level in the last several years. The quality of images captured by the compact camera lenses of a smartphone have now appreciably increased. Now, even some of the low-end phones of the market spectrum are able to take reasonably good images in

suitable availability of lighting, due to the advancement in software and hardware tools for processing the images post capture. However, despite these tools, these cameras still fall behind the aesthetic capabilities of their DSLR counterparts. In the quest to achieve high quality images through a smartphone camera, various image semantics are inadvertently ignored leading to a less artistic image quality than a professional camera. While a number of tools for automatic image enhancement exist, they are usually focused on adjusting only global parameters such as contrast or brightness, without improving the texture quality or taking the various image semantics into account. Moreover, they are usually based on a predetermined set of rules that do not always consider the specifics of a particular smartphone camera. In this work, we have endeavored to use an end-to-end deep learning technique to transform lower quality images from a smartphone camera into DSLR-quality images. To enhance the image sharpness, we have used an error function that combines the three losses - the content, texture and color loss from the given image. By training on the large-scale DSLR Photo Enhancement Dataset, we have optimized the loss function using Generative Adversarial Networks. The end results produced after testing on a number of smartphone images yield enhanced quality images comparable to the DSLR images with an average SSIM score of approximately 0.95

Index terms - image enhancement neural networks generative adversarial networks gans deep convolutional neural networks generator loss vgg loss multi-component loss function ssim score comparison

Enhanced Heart Disease Prediction Using Ensemble Learning Methods

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Number of people losing their lives due to heart disease is growing day by day, revealing the need of a model which predicts beforehand. An initiative has to be taken to aid the people by giving them a cautionary advice about the disease at the correct time. It is not easy for everyone to afford expensive treatments and medications so there is urgency of a structure which can quickly go through the information of the patient and inform them at an earlier stage if they test positive. We need a logical process that analyzes and finds unrevealed data and figures in the medical data. Thus we propose to perform the analysis of given dataset by performing the data validation and preprocessing techniques, exploration data analysis visualization and training a model, build a classification model and then performance measurements of supervised machine learning algorithms with evaluation classification report, identify the confusion matrix and categorizing data from priority. The main objective is to make a predictive analytics model to diagnose the various stages of heart patients by ensemble learning methods like Bagging, Stacking and Boosting which aims to enhance the accuracy of the deficient algorithms. Outcome of these ensemble techniques are analyzed and the one that proves to enhance the precision is considered

Keywords— Heart Disease Prediction, Machine Learning, Classification Algorithms, Ensemble Learning Classifier, Cleveland Database

SECURED MULTI OWNER DATA SHARING IN CLOUD

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Cloud computing enables us to easily store their data and simply share data with others. Due to the safety threats in any cloud, users take measures to secure their data, such as signatures, on their data to protect the integrity. With the advent of cloud computing, it becomes increasingly popular for data owners while allowing data users to retrieve these data. For privacy concerns, over encrypted cloud data, several researches under the single owner model have been done. However, most cloud servers which are in practice do not just serve one owner, instead, they support multiple owners to share the benefits brought by cloud servers. In our project we proposed a multiple owner file sharing system in cloud computing, here the user can use their particular owner file and also he can access other owner files. For accessing, the way of request and response is used. If another owner responds the user, it means that he can get the private key from the owner and then he can access the file.

ACOUSTIC PHONETIC ANALYSIS FOR EMOTION RECOGNITION AND GENDER DETECTION

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Emotions are subjective and it is normal for different people to interpret them in their own ways. It is a major task to find datasets with audios which are not biased and the main datasets present are from news channels or movie clips. In our project, we would be using the dataset of RAVDESS which contains 24 professional actors' audio sets. It also determines the gender of the actors through MFCC, also called state-of-the-art, which accurately represents the short time spectrum manifesting the shape of the vocal tract. Speech emotions include calm, happy, sad, angry, fearful, surprise, and disgust. We would be developing a convolutional neural network model for emotion recognition and gender detection from speech. The model would be trained with the dataset obtained and would be tested with external audio.

AUDIO INDEXING FOR EFFICIENT INFORMATION RETRIEVAL

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With the emergence of essentially limitless data storage potential and with the escalating Internet usage, it becomes reasonable to imagine a world in which it would be possible to retrieve any information which is stored with the ease of a few keystrokes or voice commands. Since a major chunk of the stored information is in the form of speech from various sources, it becomes essential to develop and design the technologies necessary for browsing and indexing such audio data. The proposed work considers converting the audio file to text data for indexing. Hindi being one of the most widely used languages in India is considered for processing. Speech recognition is mandatory in many application areas. Because of the difficulty of locating information in large audio archives, speech has not been valued as an archival source. But, post a decade of steady advancements in language and speech technologies, it is now very much possible to develop automatic content-based indexing & retrieval tools, which, with time, will make speech recordings and samples as valuable as text has been as an archival resource of data. The research community has crafted and dedicated themselves on transforming audio materials such as songs, debates, news, political arguments, to text. The proposed work is carried out as two phases. The first phase is speech recognition of input audio files using Google Speech API and converted to text data. The second phase is retrieving the audio files with specific keywords. The experiment is conducted with input from youtube videos for better results.

Keywords- audio indexing, retrieval, voice commands, speech recognition

DEEP LEARNING BASED IRIS RECOGNITION FOR VOTING SYSTEM

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In this paper, we are scanning an individual's iris and storing it in a voter's database by giving appropriate AADHAR card no. If an individual wants to cast a ballot, at that point their iris is distinguished and this recognized picture is contrasted with the picture in a voter's database.. When the iris is recognized we get the information about the voter in our PC, then the person is allowed to vote. The current voting system is not secure, some individuals give dummy votes or they are registered at more than one place and some traditional model-based iris recognition gives high false detection rate and low processing speed. In this paper, the security of the voter is discussed and in general and the focus is on making the voting system more robust and reliable by eliminating dummy voters. This paper researches another profound learning-based methodology for iris acknowledgment and endeavors to improve the precision utilizing an increasingly streamlined system to all the more precisely recuperate the delegate highlights. We consider the AlexNet Convolutional Neural Network transfer learning model for iris images features extraction and recognition, which not only results in a simplified network but also results in outflanking coordinating exactness more than a few traditional and best in class calculations for iris acknowledgment.

IOT BASED PRECISION AGRICULTURE USING AGRIBOT

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In excess of 60 percent of the populace in the India, agribusiness acts as the fundamental territory occupation. Of late, due augmentation in labor lack interest has created for the headway of the autonomous vehicles like robots in the cultivating. A robot called agribot has been proposed for provincial purposes. It is expected to constrain crafted by farmers despite accelerating and precision of the work. It plays out the simple limits related with developing for instance sprinkling of pesticide, planting of seeds, and so forth. Showering pesticides especially critical for the workers in the zone of possibly ruins the security and prosperity of the workers. This is especially critical for the workers in the region of potentially dangerous for the prosperity and adequacy of the workers. The Proposed structure targets arranging multipurpose independent country mechanical vehicle which can be controlled through IoT for seeding and showering of pesticides. These robots are used to decrease human intervention, ensuring exceptional yield and capable utilization of advantages.

Index-terms - IoT, Agribot, Sprayer, Pesticides.

GUI APPLICATION FOR SUMMARIZING AND OPTIMIZING AUDIO AND TEXTUAL DATA

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Text summarization is one of those implementations of nlp which have been popularized greatly over time. Earlier versions were simple and sometimes were based on only one basis. nowadays summarization can broadly be divided into two main categories to classify it. They are abstract and extractive summarizers. the implementation of seq2seq model for summarization of textual data using tensor flow/ keras and demonstrated on amazon or social response reviews, issues and news articles. Text summarization basically works by cutting out the excess data and giving only the required data.lstm summarization which we used in this project of ours trains the machine to make meaningful sentences based on the dataset given So, our aim is to compare spacy, gensim and nltk summarization technique by the input requirements and try to prove that the implemented lstm based summariser is more efficient and better.

Keywords- Recurrent neural network; natural language processing; LSTM; neural networks and tensorflow

ROAD TRAFFIC ANALYSIS

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Many surveillance devices are utilized for keeping track of people using video feeds. Older detection algorithms that were based on background Subtraction models couldn't deal with a large group of people. Entity following is a major characteristic utilized in many remote sensing applications. Entity following is utilized to follow an entity (or multiple entities) over a sequence of images or over a video feed. It can also be called a process of dividing and segmenting a person of interest from a video feed and keeping the follow of its movement,inclination,displacement,etc. pursuance of extracting the useful characteristics. Density estimation and crowd detection from congested images and determining motion of image have a verity of application that can be congestion, public safety, crime detection,crowd abnormalities, visual surveillance over the feed, and city modeling. Recent vigorous and highly effective crowd counting and following algorithms are state of the art for video Surveillance devices . As per the latest approaches in machine learning, these algorithms produce new features that can be utilized for developing fast inference in the real video feed. In our project, we will use a considerably new approach that will enable us to combine classification and detection work into one form using a convolution neural network to accomplish it. Although it has many advantages, that it still has some know drawbacks related to fully-functional modules that restrict applying it to images having different resolution,pixel density and ability to differentiate closely related entities in groups which are necessary to determine as we work on a low-quality image that usually includes dense small groups of people together. In this project, we train and finally get a network for vigorous crowd detection in real Scenes . Later its applications can be utilized in Vehicle Driver Assistance System, Automated Surveillance, Lane Detection.

RSSI CENTERED ZIGBEE SELF GOVERNING MONITORY SOFTWARE FOR PRISONERS

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There are many lawbreakers in the world, Jail is the place where all the lawbreakers are put behind the bars. There are many chances in prison, that prisoners can escape from the prison. There are many technologies accessible in and around the globe, none of the things assists with diminishing the odds of getting away from the jail, so we made a framework to shield the detainees from getting away from prison because prison safety is also the public safety in the world. We used the RSSI (Received Signal Strength Identification) method to protect the prison. Basically, in a network the distance between a pair of nodes is estimated from the Received Signal Strength Identification (RSSI). We therefore used that same approach to measure the gap from the criminal to the control tower in real time. Once prisoners try to cross the boundary of the prison it gives the alert to control room and gives shock through nerve stimulator.

FACIAL EMOTION RECOGNITION USING DEEP CONVOLUTIONAL NEURAL NETWORKS

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Human Emotions are the spontaneous reactions that occur to a human when they react to various situations. These emotions do not need conscious effort and they induce physiological changes in the muscles of the face while reflect in the facial expressions. The various Facial emotions that occur in the human's face could include happy, sad, anger, disgust, fear, surprise and many more. These emotions that occur due to the inside feelings of a person play a key role in the non-verbal communication. There has been a lot of research that has been performed in the computer modelling of a human's emotion, but the researches fall way behind the human vision. There have been various approaches to predict the human's emotion but here we provide an approach where the human emotions could be predicted using deep convolutional neural networks. The FER-2013 database has been used for training in this project and the assessment of the proposed project provides good result and obtained encouraging accuracy for future projects.

FAULT ANALYSIS AND DETECTION OF ROTATIONAL SYMMETRIC S-BOXES

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In past years, various side channel attacks on have been targeted on algorithms performing cryptography to extract sensitive information, demonstrating easy and less power consumption ways to extract the secret key. To prevent this, many algorithms have been developed to make the cryptography process resilient, and some are implemented in practice. Most of such algorithms are attack specific and may not prevent the cryptographic device against other attacks, rather it may make them more vulnerable. For this paper, Rotation Symmetric S-Boxes (RSSBs) and impact of such side-channel attacks on them by adding a fault detection circuit and analyzing the resilience of such modified circuit to power attacks is studied. For simplification, we analyze just one component, i.e. the S-box in the AES algorithm and the effect of these attacks on the previous and a modified S-Box is studied, where a parity check circuit is added. The results shows that an added parity check circuit affects adversely the resilience of the cryptographic tool towards attacks that analyses power consumption of the circuit.

SCALABLE AND SECURE SHARING OF PERSONAL HEALTH RECORD IN CLOUD COMPUTING USING ATTRIBUTE BASED ENCRYPTION

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Singular prosperity record (PHR) is a creating quiet determined model of prosperity information exchange, which is as often as possible re-appropriated to be taken care of at an untouchable, for instance, cloud providers. Nevertheless, there have been wide insurance stresses as near and dear prosperity information could be displayed to those outcast servers and to unapproved parties. To ensure the patients' control over access to their own PHRs, it is a promising technique to encode the PHRs before redistributing. Be that as it may, issues, for instance, risks of security presentation, flexibility in key organization, versatile access and profitable customer refusal, have remained the most noteworthy troubles toward achieving fine-grained, cryptographically actualized data find a good pace. At the present time, propose a novel patient-driven structure and a suite of segments for data find a good pace PHRs set aside in semi-trusted in servers. To achieve fine-grained and versatile data find a workable pace PHRs, impact propertybased encryption (ABE) frameworks to encode each patient's PHR record. Not exactly equivalent to past works in secure data re-appropriating, revolve around the various data owner circumstance, and hole the customers in the PHR structure into different security spaces that altogether decreases the key organization multifaceted nature for owners and customers. An elevated level of patient security is guaranteed simultaneously by abusing multi-authority ABE. Our arrangement also enables dynamic modification of access courses of action or record qualities, supports gainful on-demand customer/property revocation and break-glass access under emergency circumstances.

FAKE PROFILE DETECTION ON TWITTER USING MACHINE LEARNING

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The advent of social media is an engineering marvel and a boon to mankind. With every advancement in technology, negative elements of the society are encountered who try to find loopholes and leverage them in order to victimize innocent users. In this context a similar problem is faced. The presence of fake profiles not only diminishes the experience offered by the platform but also possesses the power to cause heavy damage to an individual's reputation and privacy. It is of paramount importance to find methods to arrest the same. In this project multi-variate analysis on freely accessible data is carried out from the user's profile without any infringement of privacy and supervised learning algorithms for classification of profiles are applied. The goal is to track the typical behavior of fake profiles and contrast them with the characteristics of original profiles. Finally a comprehensive comparison of accuracy for the supervised learning algorithms and their respective relation to number of profile features so as to determine the best fit algorithm for the given data is provided.

Index Terms— Social, Machine Learning, Networks

FUSION OF STRUCTURAL AND TEXTURAL FEATURES OF SKIN CANCER RECOGNITION

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Skin disease is the deadliest type of skin malignancy, which is viewed as one of the most well-known human malignancies on the planet. Early location of this infection can influence the consequence of the sickness and improve the opportunity of enduring. The colossal improvement of profound learning calculations in imagerecognition undertakings guarantees an incredible accomplishment for therapeutic picture examination, specifically, skin malignant growth arrangement for skin disease diagnosis . this strategy comprises of three sections as picture preprocessing, image segmentation ,image characterstics , image pre proceesing contain two spaces they are spatial area and recurrence domain. image division contains different channels that are utilized for different properties of image . and picture division done by k-mean clustering . Later by glcm features using svm algorithm we can classify.

KEY WORDS – K Mean Clustering, SVM Algorithm, Median filter.

ARDUINO BASED HEART RATE MONITOR AND HEART ATTACK DETECTION SYSTEM

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In recent times some of human beings are dropping their life because of heart assault. Heart assault can arise whilst the waft of blood to coronary heart is blocked. As a result of past due prognosis of heart attack we're inadequate to shop the lives of many human beings. Comfy non-stop monitoring of affected person's physiological symptoms has the potential to augment conventional scientific exercise, especially in developing international locations that have a scarcity of healthcare experts. Its miles very critical to continuously reveal the unconscious/coma patients to recognize their fitness situation. On this paper, we propose a gadget with the intention to discover coronary heart assault via tracking the heart charge based on IoT (internet of things). Monitoring and alerting the clinical individual, when the comatose gains cognizance using movement detection gadget. We used four sensors for monitoring the health of the patient. Pulse sensor is used to monitor the pulse rate functioning of heart and temperature sensor is used to monitor the body temperature, MEMS sensor to find the movement in the patients who is in unconscious state and pressure sensor to find the blood pressure. This device could be helpful in helping the health practitioner about the fitness circumstance of the affected person and alerting the physician each time care is needed. The proposed system will help the physician via giving an alarm about the fitness situation of the patient, when the set of sensor values are out of the ordinary range. Those outcomes are displayed on the laptop the use of IoT machine.

Keywords: Heart assaults, patients, pulse sensor, MEMS sensor, health condition.

URL Based Detection of Phishing using Random Forest Algorithm and SVM

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Malicious web sites largely promote the growth of Internet criminal activities and constrain the development of web services. As a result, there has been a strong motivation to develop systemic solutions to stop the user from visiting such websites. We propose a learning based approach to classify web sites into 3 classes: Benign, Spam and Malicious. Our mechanism only analyzes the Uniform Resource Locator itself without accessing the content of web pages. Thus, it eliminates the runtime latency and the possibility of exposing users to the browser based vulnerabilities. This paper proposes an effective way for detection of phishing websites using Random Forest Algorithm, SVM and few specific URL features for better results.

Keywords — Learning based approach, Random Forest Algorithm, Support Vector Machine, URL features.

Measuring the Risk of Accidents Using K-Means Clustering Algorithm

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There are many automobile industries to design and build safety measures for automobiles, but it is difficult to predict traffic accidents. There are a large number of accidents happening in rural and urban areas. As the driver is the information receiver and prime decision-maker in the driving process, our research focuses to make the driver aware of the risks and consequences in the route that the driver wanted to take and proceed. Patterns associated with different attributes can be identified by developing an accurate prediction analysis which will be capable of automatic prediction of various accident scenarios. Our model will be useful to prevent accidents and identify areas and conditions in which accidents are likely to happen. That will further help in the development of safety measures. We are aiming to acquire maximum possibilities using previous records applying the k-means algorithm.

Keywords — Accidents, Driver, Decision Maker, Models, Clusters, Measures, Traffic, Risk

Cluster and Exploratory Data Analysis for IoT based Heart Rate Monitoring System

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This paper is aimed at developing an IoT based heart rate monitoring system using a heart rate sensor, NodeMCU which is a free open source platform for IoT and ThingSpeak Cloud. Further the acquired sensor data are processed with cluster and exploratory data analysis using R Studio. The cluster analysis of heart rate monitoring can be used for prediction solution of heart rate for a particular patient. The historical heart rate data are collected in Cloud for further analysis and also can be used for prediction. Since the data collected from sensor is high in volume, the data can be categorized as Big Data. Hence the R script is used for processing the data.

Keywords—IoT, heart rate sensor, ThingSpeak Cloud, cluster, exploratory data analysis, prediction.

IDENTIFICATION OF FAKE ACCOUNTS IN FACEBOOK USING MACHINE LEARNING

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Social media has become a fundamental part of our society. It's use is not only limited to updating one's social status, but also in spreading awareness and knowledge about the critical things going on around the world. With such great reach and use there are increased chances of criminal activities like phishing, account hacking, spamming and many more illegitimate activities. Such activities are usually done using fake accounts. These fake accounts can be created on behalf of a person or an entire organisation and used to fool people by trapping them with various schemes. Such accounts usually have unusual behaviour than the true accounts. These anomalies can be traced and detected using various machine learning techniques. This technique not only accelerates the process but also guarantees correct results. Our project focuses on using different machine learning methodologies to detect fake accounts in the social media giant, facebook

Keywords—Facebook , Machine Learning, Fake Accounts, Social Media, Security, Decision Tree, XG Boost

WORD VECTOR USING ADAM OPTIMIZATION FUNCTION

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There has always been a strong interest in expressing notations to present vocabulary of a language in linguistics. This process is quite challenging because of high computational requirements, and the dimensionality curse. We use a word to vector approach to process text which can be best defined as a two-layered neural network. A text corpus will be provided as an input and a set of vectors representing features of words will be obtained as an output. It is not a deep neural network which allows it to be trained quickly compared to other neural network architectures. It embeds the words in numeric form which neural networks can consume. Continuous Bag of Words (CBOW) and Skip-gram models for word vector representation show immense success in capturing the semantic and syntactic relationships between words of a given language. These models show immense success in capturing the semantic and syntactic relationships between words of a given language. However, there is still scope of improvement in the domain of vector space representation. We propose to apply the recently introduced rectified Adam optimization function in place of the RMSprop optimization function. The function shows promising outcomes in terms of training times and accuracy for large datasets.

Keywords—Word2Vec, CBOW, Skip-Gram, Word Embeddings, Machine Translations, Text Summarization, Rectified Adam Optimization Function

DEVELOPMENT OF HAND SIGN RECOGNITION MODEL FOR DIFFERENTLY ABLED

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A recent study has shown that around five percent of the world's population which is around half a billion people have fallen victim to hearing loss. And if this rate continues, then the numbers are projected to double by the time we reach 2050. The main aim of this paper is to bridge the gap between the differently-abled and the general population. It is proposed to create a chatbot which would take hand signs as input from the end-user and translate it into speech. A side product of this work would be that users can interact with the chatbot without typing in any commands, i.e. the hand signs would be translated into text, which would be passed onto the chatbot as input. Based on this text the chatbot returns an appropriate response to the question of the user. The local visual descriptors are to be extracted using SIFT (Scale Invariant Feature Transform) Upon completion of the model, it will be parsed with a chatbot using the NLTK python library.

Keywords –Scale Invariant Feature Transform(SIFT), Chatbot, Sign Language, Tensorflow, Classifier

TRAFFIC LOAD BALANCING USING SOFTWARE DEFINED NETWORKING (SDN) CONTROLLER AS VIRTUALIZED NETWORK FUNCTION

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SDN and NFV (Network Function Virtualization) collaboratively recognized as the most promising bearing for flexible programmability of network control functions and protocols with dynamic usage of network resources. SDN provides abstraction of network resources over well-defined APIs to achieve underlying topologyindependent multiple tenant networks with required QoS and SLAs. NFV paradigm deploys network functions as software instances namely VNFs on commodity hardware using virtualization techniques. This way, virtual IP functions such as load balancing, routing and forwarding or firewall can operate as VNF in cloud with positive outcome in network performance. In this paper we aimed to achieve traffic load balancing by using virtual SDN controller (vSDN) as a VNF. With vSDN, when there is uneven and increased load, secondary vSDN controllers can be added to share this load. Need of secondary vSDN is determined and a copy vSDN with exactly same configurations as original vSDN is created which operates accurately and shares traffic load balancing tasks with original vSDN controller. Both vSDN controllers independently placed in cloud with transparency assuring that every client in network is familiar with the existence of the newly created secondary vSDN controller

SENTIMENT ANALYSIS OF GAME REVIEWS AND HYPER PARAMETER TUNING OF THE MODEL

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The Gaming Industry is widely exposed to experimental products and it is uncertain for the customer to choose a better game. Sentimental analysis is the process by which the emotional tone behind a number of words can be determined so that attitudes, opinions, and emotions expressed on the website are understood. In the proposed method, Machine Learning models are used to perform sentiment analysis on STEAM game reviews. Neural Networks is used be perform sentiment Analysis. Optimal Hyperparameters for training the model are selected using the newly proposed nature inspired algorithm, Harris Hawks Optimization Algorithm.

Keywords— *Sentimental analysis, Artificial Neural network, Machine learning, Harris Hawks Optimization (HHO), Steam.*

Generating Melodies Using Multi-Dimensional Generative Networks

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This paper proposes a novel method for generating melodies using multi-dimensional adversarial generative networks. Existing methods using raw audio synthesis and sequential patterns are based on audio generation learning based on audio, pitch, beat, time difference etc. The objective of this paper is to generate musical melodies based on existing musical melodies following a certain genre, composer or category. Given a dataset consisting of similar musical melodies, be it genre, composer or mood, the network will generate a new melody which sounds like another melody in the given criteria.

Index Terms—generative adversarial networks, music generation

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