## DEPARTMENT OF CSE

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ADITYA
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**Aditya Institute of Technology and Management, Tekkali**
**(An Autonomous Institution)**

**VISION OF THE INSTITUTE**

To evolve into a premier engineering institute in the country by continuously enhancing the range of our competencies, expanding the gamut of our activities and extending the frontiers of our operations.

**MISSION OF THE INSTITUTE**

Synergizing knowledge, technology and human resource, we impart the best quality education in Technology and Management. In the process, we make education more objective so that the efficiency for employability increases on a continued basis.

**CSE Vision**

To become a pioneer in providing high quality education and research in the area of computer science and engineering.

**CSE Mission**

- Enrich society and advance computer science and engineering by preparing graduates with the knowledge, ability, and skill to become innovators and leaders who are able to contribute to the aspirations of the country and society.
- Benefit humanity through research, creativity, problem solving, and application development.
- Share knowledge and expertise to benefit the country, the region, and beyond while inspiring people to engage in computing fields.

Dr. K. Someswara Rao
CHAIRMAN

**Message**

At AITAM, we are committed to excellence in everything we do. We strive to mould the students in balancing intellectual and practical skills to become leaders in all the fields of Technical know-how and Management. We have created the finest facilities for the students to make the most of their scholastic pursuits. We are closely aligned with the corporate world which ensures exchange of ideas and experiences that keep our curricula focussed on current developments and challenges in the field of engineering. We are firmly committed to research and consulting activities to contribute to the development of the discipline of engineering. Our vitality lies in our spirit of innovation. Our strength lies in our pragmatic approach. Our success lies in our will to do.

Sri L.L. Naidu
SECRETARY

**Message**

Aditya Institute of Technology and Management is founded to meet the increasing demand for competent engineering graduates. Within a short span of its inception, AITAM has grown to be a premier engineering college of its kind and has won laurels and kudos from the industry. The faculty and staff in AITAM are dedicated to providing first-class education that instils strong and potent basic knowledge for sound practice in science and engineering for the well-being of the society. The Institute offers curricula that nurtures creative thinking and prepares students for productive and rewarding careers. The Institute offers programmes that deepen learning experiences of our students and prepare them for successful careers as engineers.

Prof. V.V. Nageswara Rao
DIRECTOR
**Message**

Engineering education at AITAM is indeed a rewarding intellectual experience. The Institute prepares the engineering professionals of tomorrow imbued with insight, imagination and ingenuity to flourish as successful engineers. Our programs are attuned to the needs of the changing times. The classrooms are ultra-modern; the library and labs are cutting-edge; and all the members of the faculty are workaholic professionals and masters in their fields. Not surprisingly, our students are recruited by such renowned organizations as HCL, Satyam, WIPRO, INFOSYS, TCS, Visual Soft, Innova-Solutions and InfoTech. The exceptional dedication of our students, faculty and staff, and our collaborations with Industry and other institutions ensure that the Institute is well-poised to create a unique niche in the horizons of engineering education.

Dr.A. S. Srinivasa Rao
PRINCIPAL

**Message**
It is only through knowledge that man attains immortality. Knowledge has to expand or grow to remain as knowledge. The road to excellence is toughest, roughest and steepest in the Universe. The world requires and honors only excellence. Available information has to be directed by wisdom and intelligence to create new knowledge. Promotion of creativity is the new role of education. It is only through creative thinking that the present and future problems can be addressed to find dynamic solutions. Technology should be used to help remove poverty from the world. In fact forty per cent of the world's poor are in India. Confidence leads to capacity. It is faith in oneself that produces miracles. Education at AITAM helps build character, strengthen the mind, expand the intellect and establish a culture of looking at problems in a new perspective. The student is put through rigorous training so that he can stand on his own feet after leaving the portals of the Institute.

Dr. G.S.N.Murty
HOD,CSE DEPT

**Message**

It gives me immense pleasure to lead the department of CSE.Our college is one of the premier institutions, unique like a prism reflecting the manifold shades of learning, research and extra curricular activities. The Department of CSE is striving hard towards the goal of providing innovative and quality education with high standard to achieve academic excellence and provides platform for the students to achieve their career goals. We focus on the holistic development of the students by a combination of both curricular and extracurricular activities. The Department also takes initiative to improve the soft skills, analytical capabilities and verbal communication of the students so that they can face the competition in the corporate world confidently. The Department has a team of highly experienced and motivated faculty members who are in the process of tuning the young minds to make them globally competitive. Innovative methods of teaching and learning process are adopted to achieve learning abilities through practice, exposure and motivation. Department has an excellent infrastructural and computing facilities and provides a conducive environment to promote academic and research excellence in the department.I congratulate to the team of faculty members and the students for their brilliant and original efforts. I wish all the Students and Faculty a great academic career.

**JULY 2020-JUNE 2021**

## B.TECH PROJECT ABSTRACTS

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---------|----------|---------------------|---------------|
| 1 | 17A51A0501 | Ajay Prasad Kushwaha | E-Learning Portal, Deep Codec Guru (DCG) |

**Abstract:** The main objective of this project is to develop an E-learning Portal namely Deep Codec Guru (DCG) which can provide Industry level standard training and domain courses certificate on latest technology at affordable or free of cost especially to the learners coming from poor family background. We have used different languages of web development like HTML, CSS, Bootstrap, JavaScript, PHP and MySQL in this portal. It mainly focuses on students' learning stuffs, feasible platform for online quizzes, online examination and so on. In addition to this, we have included Online Learning Management System, Online Quiz System, Online Compiler and Coding Platform, Online Examination System, Platform for Prompting Educational Stuff for Learners Community.
**Deliverables/FunctionalSpecification**

Registering new Learners
Collecting students information
Accessing to the Study Stuff including quizzes and Online examination
Conducting Online Examination i.e.Quiz and Programming based
Generating result and Certificate

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 2 | 17A51A0507 | Annepu Ushakiran | **Fake News classification using Machine Learning Models** |

**Abstract:** Most of the smart phone users prefer to read the news via social media over internet.The news websites are publishing the news, providing the source of authentication. Human inefficiency to distinguish between true and false facts poses fake news as a threat to logical truth, which deteriorates democracy, journalism, and credibility in governmental institutions. Inthe wake of emerging technologies, there is dire need to develop methodologies, which can minimize the spread of fake messages or rumours that can harm society in any manner. Online clients are normally vulnerable and will, in general, perceive all that they run over web-based networking media as reliable. Consequently, mechanizing counterfeit news recognition is elementary to keep up hearty online media and informal organization. . It is harmful for the society to believe on the rumours and pretend to be a news. The need of an hour is to stop the rumours especially in the developing countries, and focus on the correct, authenticated news articles. And so, we propose a model for recognizing forged news, which is a computational stylistic analysis based on natural language processing, efficiently applying machine learning algorithms like decision tree and gradient boosting algorithm to detect fake news in texts extracted from social media.

| Sl.No. | Roll No. | Name of the student | Project Title |
|---|---|---|---|
| 3 | 17A51A0526 | Sai Meghana Gudisa | **Customer Churn Prediction** |

Customer churn prevention is one of the deciding factors when it comes to maximizing the revenues of any organization. Also known as customer attrition, it occurs when customers stop using the products or services of a company. Customer churn is a major problem and one of the most important concerns for large companies. Due to the direct effect on the revenues of the companies, especially in the telecom field, companies are seeking to develop means to predict potential customer to churn. Therefore, finding factors that increase customer churn is important to take necessary actions to reduce this churn. The fast expansion of the market in every sector is leading to superior subscriber base for service providers. Added competitors, novel and innovative business models and enhanced services are increasing the cost of customer acquisition. In such a fast set up, service providers have realized the importance of retaining the on-hand customers. It is therefore essential for the service providers to prevent churn. It is a phenomenon which states that customer wishes to quit the service of the company. Churn is a major problem not only in banking sector but also other sectors which highly depends on customer participation. Churn prediction is a health indicator for companies.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 4 | 17A51A0548 | Suvvana Hymavathi | APS Component Failure Classification in Trucks. |

**Abstract:** The dataset consists of data collected from heavy Scania trucks in everyday usage. The system in focus is the Air Pressure system (APS) which generates pressurized air that are utilized in various functions in a truck, such as braking and gear changes. The dataset's positive class consists of component failures for a specific component of the APS system. The negative class consists of trucks with failures for components not related to the APS. The data consists of a subset of all available data, selected by experts. For this work, we are using dataset released by Scania CV AB on the UCI Machine Learning Repository. Our goal in this work is to predict if the truck needs to be serviced or not and minimize the cost associated with Unnecessary checks done by mechanic. If negative labeled point is classified as positive and in the other case missing a faulty truck, which may cause breakdown. If positive labeled point is labeled as negative.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 5 | 17A51A0540 | MOGILIPURI NIHARIKA | DROWSINESS DETECTION SYSTEM |

**Abstract:** Driver fatigue is one of the major causes of accidents in the world. Detecting the drowsiness of the driver is one of the surest ways of measuring driver fatigue. So there is a need for a reliable driver drowsiness detection system that could alert the driver before a mishap happen. The driver expressions are detected and then the dataset is compared to give the desired output on a particular scale. There are a lot of drivers and they all feel lazy or sleepy some times which could lead to fatal accidents. To reduce these accidents, a system should be developed which can identify the expressions of the driver and then alert the person in advance. This could save a lot of lives. One of the technical possibilities to implement drowsiness detection        systems         is        to        use         the        vision-based        approach. In this project, we aim to develop a  drowsiness detection system. This system works by monitoring the eyes of the driver and sounding an alarm when he/she is drowsy. The system so designed is a non-intrusive monitoring system. The priority is on improving the safety of the driver without being obtrusive. In this project, the eye blink of the driver is detected. If the driver's eyes remain closed for more than a certain period of time, the driver is said to be drowsy and an alarm is sounded. The programming for this will be done in OpenCV and Keras using the Haar Cascade library for the detection of facial features.

| . No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 6 | 17A51A0515 | Bokara Swetha shaini | **Object Detection From Images Using Deep Learning** |

**Abstract:** Object Detection is the process of classifying and locating variant objects in images. It is a challenging problem that Computer Vision and Machine Learning involved by applying various Deep Learning methods. Computer Vision and Machine Learning achieved the most impressive results. Autonomous vehicles, surveillance systems, face detection systems lead to the development of accurate object detection system. These systems recognize, classify and localize every object in an image by drawing bounding boxes around the object. These systems use existing classification models as backbone for Object Detection purpose. Object Detection is the process of finding instances of real-world objects such as human faces, animals and vehicles etc., in pictures, images. However, there are some problems with algorithms as the images might have different aspect ratios and spatial locations. These factors could lead to a large number of regions and the computational time would increase. As the algorithm has a unique structure, so it's hard to find an error and difficult to debug. This work focuses to overcome the drawbacks of existing systems using "Deep Learning Framework".

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 7 | 17A51A0530 | KONKYANA SAMHITHA | **Emotion Recognition Of Images Using Deep Learning** |

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 9 | 17A51A0502 | Aleti Jagadeswara rao | **Face problems and defects detection using machine learning and conventional neural networking with open CV** |

**Abstract:** Age and gender predictions of unfiltered faces classify unconstrained real-world facial images into predefined age and gender. Significant improvements have been made in this research area due to its usefulness in intelligent real-world applications. However, the traditional methods on the unfiltered benchmarks show their incompetency to handle large degrees of variations in those unconstrained images. More recently, Convolutional Neural Networks (CNNs) based methods have been extensively used for the classification task due to their excellent performance in facial analysis.. In this work, we propose a novel end-to-end CNN approach, to achieve robust age group and gender classification of unfiltered real-world faces. Two-level CNN architecture includes feature extraction and classification itself. Feature extraction extracts feature corresponding to age and gender, while the classification classifies the face images to the correct age group, gender and also Tan Detection.

**Abstract:** Human emotion recognition plays an important role in the interpersonal relationship. Emotions are reflected from speech, hand and gestures of the body and through facial expressions. Hence extracting and understanding of emotion has a high importance of the interaction between human and machine communication. He/She expressions are detected and then the dataset is compared to give the desired output on a particular scale. The main objective of this project is to develop the emotion recognition system from facial Expressions. Facial emotion recognition is the process of detecting human emotions from facial expressions. The human brain recognizes emotions automatically, and software has now been developed that can recognize emotions as well. The emotions can be classified into 7 classes — happy, sad, fear, disgust, angry, neutral and surprise. The programming for this will be done in OpenCV and Keras using the Haar Cascade library for the detection of facial features.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 8 | 17A51A0552 | Setti Santosh Kumar | **Skin Disease Identification Using Convolutional Neural Network Models** |

**Abstract:** In recent days, skin cancer is seen as one of the most Hazardous forms of the Cancers found in Humans. Skin cancer is found in various types such as Melanoma, Basal and Squamous cell Carcinoma among which Melanoma is the most unpredictable. Early detection of Melanoma can potentially improve survival rate. In this project, we will study the performance of various Convolution Neural Network models for diagnosing melanoma, the deadliest form of skin cancer which is helpful for identification of melanoma disease at an early stage.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 10 | 17A51A0557 | Uppada Sowjanya | **AUTOMATIC OPINION MINING OF STUDENTS SPEECH ABOUT EDUCATIONAL INSTITUTIONS** |

**Abstract:** Automatic classification of sentiment is widely used in academia and industry by several techniques. This project aims for mining positive or negative opinion of students speech(feedback). These opinions are represented by text that is derived from the speech audio content taken from students about faculty, inftructure, etc.. of educational institutions. Then, this work implements the model by the machine learning algorithms. The results could be demonstrated that the method can provide more effectiveness and satisfactory accuracy for automatic sentiment analysis.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 11 | 17A51A0536 | Malladi Swetha | Smart Vehicle Headlight Dimmer |

**Abstract:** Smart Vehicle Headlight Dimmer is a component in which we can decrease the number of accidents that are causing due to high intensity of light during night times .This helps to reduce the causing of accidents due to Troxler effect .This device helps us to adjust the intensity of the beam of the headlight according to the intensities of the surrounding light .When the intensity of the surrounding light is high ,then the headlight automatically dims .It also helps in other cases like if the Ultrasonic sensor does not works ,then if any accidents occur it will send a message to the authorized contacts along with the location using the GPS and GSM Modules. GSM module send the alert message on your mobile with the location of the accident. The advancing technology has made our day today lives easier. Since every coin has two sides similarly technology has its benefits also as its disadvantages. the rise in technology has increased the speed of road accidents which causes huge loss of life. The poor emergency facilities available in our country just increase this problem. Our project goes to provide a solution to this problem also.

| SL. No | Roll Number | Name of the Student | Project Title |
|---|---|---|---|
| 12 | 17A51A0559 | Waddi Lochana | Steel Sheet Defect Detection |

**Abstract:** The production process of flat sheet steel is delicate. To ensure quality in the production of steel sheets, today, steel industries uses images from high-frequency cameras to power a defect detection algorithm. A defective sheet must be predicted as defective since there would be serious concerns about quality if we misclassify a defective sheet as non-defective. i.e. high recall value for each of the classes is needed. We need not give the results for a given image in the blink of an eye. In this we detect or localize the defects in a steel sheet using image segmentation and classify the detected defects into one or more classes from [1, 2, 3, 4] combinedly it is a semantic image segmentation problem. For this work, we are using U-Net for Semantic Image Segmentation and dataset. The dataset we are using was released by Severstal through a featured code competition in Kaggle Competitions.

| SLNo | Roll Number | Name of the Student | Project Title |
|---|---|---|---|
| 13 | 17A51A0539 | Macherla Gnaneswari | Monitoring suspecious discussion on onine forum using data mining |

**Abstract:** People now-a-days are find of using internet technology. As internet technology had been increasing more and more. This technology led to many legal and illegal activities. It is found that much first-hand news has been discussed in Internet forums well be for eth eyare reported in traditional mass media. This communication channel provides an effective channel for illegall activities such as dissemination of copyrighted movies ,threatening messages and online gambling etc. The law enforcement agencies are looking for solutions to monitor these discussion forums for possible criminal activities. We propose a system which will tackle with this problem. In this project we had used a datamining algorithm to detect criminal activities and illegal postings. This system will use text datamining technique. This project main use for security purposes. This system will help to reduce many illegal activities which are held on internet.

| Sl.No. | Roll No. | Name of the Student | Project Title |
|--------|----------|---------------------|---------------|
| 14 | 17A51A0549 | Sahukari Likitha | Used Car Price Prediction |

**Abstract:** Now a days Used Car price prediction has been a high-interest research area, as it requires noticeable effort and knowledge of the field expert. Considerable number of distinct attributes are examined for the reliable and accurate prediction. Especially this is useful for predicting used car prices depending on various features of the car. To build a model to predict the price of the car, machine learning techniques are used. Regression algorithms are used to predict the prices. The historical data is used for prediction. The data is collected from the Kaggle Repository. The data is modelled using regression algorithms and the price is predicted. The model is evaluated by giving test data to an html page.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---------|----------|---------------------|---------------|
| 15 | 17A51A0538 | MANEM. SRAVANI | **HEART STROKE PREDICTION USING MAHINE LEARNING** |

**Abstract:** Heart stroke is one of the most critical human diseases in the world and affects human life very badly. It is one of the leading causes of death worldwide. Early detection and prevention of heart disease plays a very important role in reducing deaths caused by heart stroke. In heart disease, the heart is unable to push the required amount of blood to other parts of the body. The process for identification of this disease is consulting a doctor or visiting diagnostic centre which is tedious process. Inorder to avoid such problems, we address the challenges of healthcare, a wide range of tools, techniques and frameworks have been offered by Machine Learning as it has the capability of determining and recognizing patterns in complex datasets. In this project, We will analyse the heart stroke prediction using classification algorithm such as Naive Bayes, KNN, Random Forest and Decision Tree algorithm For this, we will prepare data sets by using the collected data from patients. The data is pre-processed and analysed using different classification algorithm for the diagnosis of heart stroke.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---------|----------|---------------------|---------------|
| 16 | 17A51A0A8 | Saiteja Tangudu | Indian premier league dynamic match winner prediction |

**Abstract:** Indian Premier League, A festive season for the cricket religion in India. Even though it enjoys a million-dollar market, and is about the most watched sport after soccer it revolves around a single term "THE MATCH WINNER". Unsettled team composition, limited overseas players slots, last ball finishes, matches paving the way to super overs are the factors which makes it an even more complex task to predict. Since it's simulation and analysis are of greater interest. Many earlier Machine learning based models have been developed to fill this space using different machine learning algorithms out of which Random Forest algorithm had attained an aggregate of 75% accuracy stood as the best. This work presents an advanced machine learning model with a promising efficiency enhanced using the relative team strength calculation which is being produced after an in-depth analysis of the most relevant attributes of interest.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 17 | 17A51A0565 | Balla Asha | Speech Emotion Recognition Using Deep Learning |

**Abstract:** Speech Emotion Recognition (SER) is the act of recognizing human emotion from speech. Automatic speech recognition is an active field of study in artificial intelligence and machine learning whose aim is to generate machines that communicate with people via speech. Speech is an information-rich signal that contains paralinguistic information as well as linguistic information. Emotion is one key instance of paralinguistic information that is conveyed by speech. Developing machines that understand paralinguistic information, such as emotion, facilitates the human-machine communication as it makes the communication more clear and natural. At present, speech emotion recognition was an emerging crossing field of artificial intelligence. A model is designed that could recognize the emotion in a speech sample. Various parameters are modified to improve the accuracy of the model. Earlier, the model developed using SVM technique. Emotion recognition is done using Support Vector Machine (SVM) as well as Multi-Layer Perceptron (MLP) Neural Network. In this project, we implement model using MLP classifier using voice quality features extracted from the RAVDESS -Ryerson Audio-Visual Database of Emotional Speech and Song Database. We use Libraries librosa, soundfile, sklearn to build a model using an MLP Classifier. This will be able to recognize emotion from sound files. We will load the data, extract features from it, then split the dataset into training and testing sets. Then, we'll initialize an MLP Classifier and train the model. Finally, we'll calculate the accuracy of our model.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 18 | 17A51A0596 | Marpu Sasikala | Ensemble Learning Approach for Prognosis of Diabetes: An Experimental Framework |

**Abstract:** Since last three decades, Diabetes has been emerged as major chronic diseases, impacting the health of all age human being. It is such a dreadful disease that, it may cause several other diseases if it is untreated and unidentified. The traditional process for identification of this disease is consulting a doctor or visiting a diagnostic centre, which is a tedious process. To cope with such problem, some of the statistical based approaches are being developed and became a partial solution up to some extent. To address the challenges of healthcare, a wide range of tools, techniques, and frameworks have been offered by the Machine Learning. As machine learning approaches have the capability of determining and recognizing patterns in complex datasets, they are identified as the best connectionist systems for predicting the future outcomes of Diabetes. Apart from statistical techniques, few classical machine learning approaches are also being developed for effective analysis of such diseases. However, classical machine learning approaches suffers with low accurate solutions, low detection rate, un identification of important features etc. In this project, an efficient Ensemble classifier based advance machine learning approach has been proposed for the diagnosis of associated risk factors, cofactors promoting its progression, complications in the prevention and control of Diabetes. The performance of the proposed ensemble model is compared with other state-of-the-art methods and validated to prove as an effective tool for diabetes prognosis.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---------|----------|---------------------|---------------|
| 19 | 17A51A0591 | Lade. Likhitha | Health care chatbot using python |

**Abstract:** Through chat bots one can communicate with text interface and get reply through artificial intelligence. Typically, a chat bot will communicate with a real person. Chat bots are used in applications such as ecommerce customer service, call centers and Internet gaming. Chat bots are programs built to automatically engage with received messages. Chat bots can be programmed to respond the same way each time, to respond differently to messages containing certain keywords . A developing number of hospitals, nursing homes, and even private centre's, presently utilize online Chat bots for human services on their sites. These bots connect with potential patients visiting the site, helping them discover specialists,and getting them access to the correct treatment. In any case, the utilization of artificial intelligence in an industry where individuals' lives could be in question, still starts misgivings in individuals. It brings up issues about whether the task mentioned above ought to be assigned to human staff. This healthcare Chabot system will help hospitals to provide healthcare support online 24 x 7, it answers deep as well as general questions. It also helps to generate leads and automatically delivers the information of leads to sales. By asking the questions in series it helps patients by guiding what exactly he/she is looking for.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---------|----------|---------------------|---------------|
| 20 | 17A51A0575 | D.Tanmayee Srilakshmi | MNIST Digit Recognition Through CNN |

**Abstract:** Research in the handwriting recognition field is focused around deep learning techniques and has achieved breakthrough performance in the last few years. But still demands for improvement in recognition accuracy and availability of performance. Convolutional Neural Networks (CNNs) are very effective in perceiving the structure of handwritten characters, words in ways that help in automatic extraction of distinct features and make CNN the most suitable approach for solving handwriting recognition problems. Our aim in the proposed work is to establish most accurate model

for MNIST dataset using CNN. Our objective is to use CNN architecture in order to achieve accuracy even better than that of ensemble architectures.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 21 | 17A51A0564 | Yamini Balaga | Vehicle Detection |

**Abstract:** Smart traffic and information systems require the collection of traffic data from respective sensors for regulation of traffic. In this regard, surveillance cameras have been installed in monitoring and control of traffic in the last few years. Several studies are carried out in video surveillance technologies using image processing techniques for traffic management. Video processing of a traffic data obtained through surveillance cameras is an instance of applications for advance cautioning or data extraction for real-time analysis of vehicles. This presents a detailed review of vehicle detection and classification techniques and also discusses about different approaches detecting the vehicles in bad weather conditions. It also discusses about the datasets used for evaluating the proposed techniques in various studies.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 22 | 17A51A05B3 | Kinjarapu Swathi | Sentiment Analysis on Twitter data using Python |

**Abstract:** With the increase in number of internet users every day, the number of people utilizing social media has expanded parallelly. It is a phenomenal way that people use to express their opinion subject to a brand, personality or a situation. The aim of the project is to expand the possibilities of a typical sentiment analysis by considering smileys (or) emojis along with text to give out a cumulative sentiment upon a given phrase and volume of tweets. We utilize data science libraries (flair, among others) from python, and train an existing model that assigns a sentiment score to each of the samples we retrieve, using several Machine Learning techniques. Collating the results of opinion mining with the volume and type of emojis that were accompanied with the samples, we thereby visualize and interpret two different aspects of sentiment analysis.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 23 | 17A51A05A5 | Pravallika Potnuru | Library Locator |

**Abstract:** Well a library is a huge collection of books. This requires a proper arrangement and placement of books in an order that makes it simple for the client to locate a specific book. Be that as it may, in very large libraries having a huge collection, finding a specific book is quite task. Despite the fact that all books are arranged in classifications, the area of classification should first be known to the client becomes more acquainted with where that specific class of books is placed. In such a condition there should be a need through client can definitely find the area of any book by simply typing its name.Here we a propose a server-based system utilizing an android application to accomplish this project utilizing wifi technology. The library administrator simply needs to include the area of a book in the system, for example, "third row Right side History Section Fourth Book" and a map of the book along with its status of weather it is at present available or issued to another person. This information is stored on the server.Presently members are given an android application that serves the book finding purpose. At whatever point client inside wifi scope of server composes the book name through the android device, it sends a demand to server for the specific book area. The server therefore questions the database and returns the book area points of interest and accessibility to the android client. Subsequently, it permits to mechanize the library book finding and in addition accessibility checking usefulness in a library.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 24 | 17A51A05B4 | Tadela. Vinay | **Face Mask Detection** |

**Abstract:** COVID-19 pandemic has had a lasting impact in many countries worldwide since December 2019. It originated in Wuhan, China. The World Health Organization (WHO) as on March 11, 2020, declared it as a deadly diseases that gained its roots across the globe and severely affected 114 countries. Every medical professionals, healthcare organizations, medical practitioners and researchers are in search for a proper vaccines and medicines to overcome this deadly disease, however no breakthrough has been reported till date. The virus spreads through air channel when an infected person sneezes or communicate with the other person, the water droplets from their nose or mouth disseminate through the air and affect other peoples in the vicinity . Face Mask detection has become a trending application due to the Covid-19 pandemic, which demands a person to wear face masks, keep social distancing, and use hand sanitizers to wash their hands.Face mask detection had seen significant progress in the domains of Image processing and Computer vision, since the rise of the Covid-19 pandemic. Many face detection models have been created using several algorithms and techniques. The proposed approach in this paper uses deep learning, TensorFlow, Keras, and OpenCV to detect face masks. This model can be used for safety purposes since it is very resource efficient to deploy. The SSDMNV2 approach uses Single Shot Multibox Detector as a face detector and MobilenetV2 architecture as a framework for the classifier, which is very lightweight and can even be used in embedded devices (like NVIDIA Jetson Nano, Raspberry pi) to perform real-time mask detection. The technique deployed in this paper gives us an accuracy score of 0.9264 and an F1 score of 0.93. The dataset provided in this paper, was collected from various sources, can be used by other researchers for further advanced models such as those of face recognition, facial landmarks, and facial part detection process.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 25 | 17A51A0572 | D. Hari Priya | HONEYWORDS- MAKING PASSWORD CRACKING DETECTABLE |
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**Abstract:** Honeywords is a simple technique for improving the security of hashed passwords. The maintenance of additional "HONEYWORDS" (False passwords) associated with each user's account. For an attacker it becomes easier to steal hash passwords and enter into account through authenticate user by cracking the hash password. An adversary who steal a file of hashed passwords and inverts the hash function cannot tell if he has found the password or honeyword by using brute force attack. Honeywords plays an important role to defense against stolen password files. Specifically they are bogus passwords placed in password file of an authentication server to device attackers. A secure server called "HONEY CHECKER" which can distinguish a user's steal password among honeywords of each user and immediately sets off an alarm whenever a honeyword is used One of the Honeyword generation method chaffing-with-tweaking provide some possible improvements which are easy to implement and introduce an enhanced model as a solution to an open problem also overcomes almost all the drawbacks of previously proposed honeyword generation approaches.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 26 | 17A51A0566 | Boorada.Praveen Kumar | **Coronavirus(COVID-19) Prediction Using Machine Learning** |

**Abstract:** The outbreak of COVID-19 Coronavirus, namely SARS-CoV-2, has created a calamitous situation throughout the world. The cumulative incidence of COVID-19 is rapidly increasing day by day. Machine Learning (ML) and Cloud Computing can be deployed very effectively to track the disease, predict growth of the epidemic and design strategies and policies to manage its spread. This study applies an improved mathematical model to analyse and predict the growth of the epidemic. An ML-based improved model has been applied to predict the potential threat of COVID-19 in countries worldwide. We show that using iterative weighting for fitting Generalized Inverse Weibull distribution, a better fit can be obtained to develop a prediction framework. This has been deployed on a cloud computing platform for more accurate and real-time prediction of the growth behaviour of the epidemic. A data driven approach with higher accuracy as here can be very useful for a proactive response from the government and citizens. Finally, we propose a set of research opportunities and setup grounds for further practical applications.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 27 | 17A51A05C0 | Yerrapatruni.Pranitha | **Drowsiness Detection System** |

**Abstract:** Drowsy driving is a major problem in INDIA. The risk, danger, and often tragic results of drowsy driving are alarming. Drowsy driving is the dangerous combination of driving and sleepiness or fatigue. This usually happens when a driver has not slept enough, but it can also happen because of untreated sleep disorders, medications, drinking alcohol, or shift work. No one knows the exact moment when sleep comes over their body. Drowsiness detection is a safety technology that can prevent accidents that are caused by drivers who fell asleep while driving. Drowsy driver detection is one of the potential applications of intelligent vehicle systems. Drowsiness detection primarily make pre-assumptions about the focusing on blink rate, eye closure. Here we employ machine learning to determine actual human behavior during drowsiness episodes. In this Python project, we will be using OpenCV for gathering the images from webcam and feed them into a <u>Deep Learning</u> model which will classify whether the person's eyes are 'Open' or 'Closed'. A convolutional neural network is a special type of deep neural network which performs extremely well for image classification purposes. The conclusions of the conducted research together with meetings with our advisor and feedback led to the first version of the System. However, we managed develop a stable foundation for the system which will be finalized by the faculty in our college.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 28 | 17A51A05A4 | POTNURU MANEESHA | **Heart disease prediction using machine learning** |

**Abstract:** In this recent era, cardiovascular disease (CVD) propagation rate has been intensifying the cause of death worldwide among the non-communicable disease. In particular the south Asian countries have a tremendous risk of cardiovascular disease at an early age than any other ethnic group. Most often it's challenging for medical practitioners to predict cardiovascular disease as it requires experience and knowledge which is a complex task to accomplish. This health industry has enormous amounts of data which is useful for making effective conclusions using their hidden information. So, using appropriate results and making effective decisions on data, some superior data analysis techniques are used, for example Naive Bayes, Decision Tree. By using some properties like (age, gender, BP, stress, etc) it can be predicted the chances of cardiovascular disease. Logistic regression, Decision tree, SVM, and Naive bayes classification algorithms have been applied to predict heart disease. In this case, logistic regression provided 86.25% accuracy. However, we also compared the UCI dataset based results with our model.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 29 | 17A51A05B7 | VADDI SUPRIYA | **An Efficient Password-only Authenticated Three-party Key Exchange Protocol** |

**Abstract:** Protocols for password-only authenticated key exchange (PAKE) in the three party setting allow two clients registered with the same authentication server to derive a common secret key from their individual password shared with the server. Existing three-party PAKE protocols were proven secure under the assumption of the existence of random oracles or in a model that does not consider insider attacks. Even though the protocol is simple and efficient, according to Ding and Horster, it should not be vulnerable to any type of off- line, undetectable or detectable on-line password guessing attacks, since the passwords are of low entropy. In proposed protocol trusted third party (key Distribution server) mediates in key distribution. Rather than storing clear text version of ID, hash of the ID is stored at the server. Every host and server agree upon family of commutative hash functions using which host authenticates itself to server when it applies for session key. This defeats undetectable online dictionary attacks and insider dictionary attack. In this protocol server acts just like an authentication server not like a monitoring server.
**Keywords:** Phishing, Encryption, Classification, Detection rate, Malicious.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---------|----------|---------------------|---------------|
| 30 | 17A51A05C6 | GODDU VENKATA SATYA SURYA NAVEEN BABU | Building Sentiphrasenet for telugu sentiment analysis |

**Abstract** :Sentiment analysis refers to the use of natural language processing, text analysis, computational linguistics, and biometrics to systematically identify, extract, quantify and study affective states and subjective information. Sentiment analysis is widely applied to the voice of customer materials such as reviews and survey responses, online and social media, and health care materials for applications that range from marketing to customer service. But when it comes to this, there are no rules for sentiment analysis. If a dataset exists, it cannot be validated as similar sentences may differ in meaning as the regional language are very predictable and have no proper rules. In this project, we used a Rule-Based Approach to build SentiPhraseNet. Here we obtained the sentiment using SentiPhraseNet and validated the results using ACTSA which is an annotated corpus data set

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 31 | 17A51A05G7 | TANKALA JYOTSHNA | Heart Disease Classification using Machine Learning Algorithms |

**Abstract:** Heart disease is the foremost cause of death. According to WHO, deaths due to heart disease account for 30% of global deaths. The main challenge that medical practitioners face is the disease not being identified at an early stage as the traditional approaches are quite time-consuming. Machine learning algorithms can help to deal with the emerging challenges in heart disease classification. In this project, we considered a dataset from Kaggle and explore how Machine learning algorithms can be used to find patterns in data. We applied ML Models to predict the target class and plot the confusion matrix for all classifier models and calculate the accuracy score for each. We considered the following Models: Support Vector Machines (SVM), K-Nearest Neighbor classifier (K-NN), SVM with PCA, K-NN with PCA. Classification plot for all the four models, bar plot for a count of males and females having heart disease, scatter plot between age and maximum heart will be done.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 32 | 17A51A05G6 | **SWAPNA DAS** | **An IOT Based automated Traffic control System** |

**Abstract:** Traffic control system is one of the major problematic issues in the current situation. Such scenarios, every signal is getting 60 seconds of timing on the road at a regular interval, even when traffic on that particular road is not dense. An automated Pi based traffic control system using webcams and sensors that help in reducing traffic density in busy traffic junctions. The design of this traffic infrastructure can help in avoiding traffic congestions. This project describes a system where web cams are integrated with Raspberry Pi to operate the lanes of traffic junction based on the density of the traffic and RFID sensors for emergency vehicles to be prioritized for safety of passengers. In this model we are using image processing techniques like background subtraction and filtering by contours, Haarcascades. As a result, the improvement in traffic system can be exponentially improved, which can lead to progressive in the overall traffic system. The image processing techniques are very helpful in detecting vehicles rather than vintage techniques like sensor density calculation, so we approached to this method.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 33 | 17A51A05H0 | **VADDI SHARMILA** | **COVID-19 DETECTOR** |

**Abstract:** The novel coronavirus 2019 (COVID-19), which first appeared in Wuhan city of China in December 2019, spread rapidly around the world and became a pandemic. It has caused a devastating effect on daily lives, public health, and the global economy. It is critical to detect the positive cases as early as possible so as to prevent the further spread of this epidemic and to quickly treat affected patients. The need for auxiliary diagnostic tools has increased as there are no accurate automated toolkits available. Recent findings obtained using radiology imaging techniques suggest that such images contain salient information about the COVID-19 virus. Application of advanced artificial intelligence (AI) techniques coupled with radiological imaging can be helpful for the accurate detection of this disease, and can also be helpful to

overcome the problem of a lack of specialized physicians in remote villages. In this study, a new model for automatic COVID-19 detection using raw chest X-ray images is presented. The proposed model is developed to provide accurate diagnostics for binary classification (COVID-19 vs. No-Findings).

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 34 | 17A51A05E9 | **PERURI SATYA SIVA TEJA** | **FP-Tree search mechanism for user browsing algorithms** |

**Abstract:** Search engine optimization is an interesting research issue in field of information retrieval for retrieving user interesting results. Satisfying the user goal is a complex task while searching user specific query, because of billions of related and unrelated data available over the network. In this proposed approach introduced an empirical model of search mechanism with FP-Tree for finding frequent use of patterns(sequence of Urls) and evolutionary algorithm for optimal results with efficient feedback sessions (based on query clicks) are constructed from user click-through logs and can efficiently reflect the information need of users.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 35 | 17A51A05F3 | **POTNURU SATYA PRIYA** | **Comparison Analysis of prediction of diabetes diseases using various machine learning algorithms: An Ensemble approach** |

**Abstract:** Diabetes mellitus is a universal syndrome of human body caused by a group of metabolic disorders where the sugar levels over a expanded stage is very high. It affects different organs of the human being body which thus damage a large number of the body's organism, in particular the blood veins and nerves. Early prediction in such disease can be controlled and save human life. To achieve the goal, this research work mainly explores various risk factors related to this disease using machine learning techniques. Machine learning techniques provide efficient result to extract knowledge by constructing predicting models from diagnostic medical datasets collected from the diabetic patients. Extracting knowledge from such data can be useful to predict diabetic patients. In this project, we employ various popular machine learning algorithms, namely Support Vector Machine (SVM), Naive Bayes (NB), K-Nearest Neighbor (KNN), C4.5 Decision Tree and boosting algorithms on adult population data to predict diabetic mellitus.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 36 | 17A51A05D9 | KOTA VEERAMMA | Video to Text Extraction |

**Abstract**: In recent years, increasing impact of deep learning on Text recognition and extraction from Images and videos has attracted lots of things. Reading is fundamental in everyday life. In real world printed content is available wherever as records prefer reports, receipts, proclamations, eatery menus, item bundles, directions, billing and so on. Text information plays a major role in numerous applications for giving a considerable measure of descriptive and dynamic information. Now-a-days major requirements in real world applications like object recognition, facilitative navigation, scene understanding, etc., makes the detection of text to be important task in content-based image analysis. In deep learning, extracting text is the primary step which contains more information for analyzing the content, indexing and retrieval of videos. In many works, text features are extracted based on morphological features such as color histograms and aspect ratios. However, under those features, similar text objects are not sufficiently distinguishable to make a distinction between them. To address this issue, we will use deep learning methodologies. The main motto behind this extraction is to recognize the text from videos. In our work, we propose a method for a variety of experiments on variety of datasets to verify that our proposed approach largely improves the performance of text detection and recognition from videos.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 37 | 17A51A05C9 | GUDLA JYOTHSNA | Secure file storage using hybrid cryptography |

**Abstract:** The information over internet is becoming a critical issue due to security problems. We have proposed a system for securing the important data from a file. Cryptography algorithms provides an effective way for protecting sensitive information. It is a method for storing and transmitting data in a form that is only readable by intended users. When the file is being added on the server, the file gets converted into byte array. The byte array will further be encrypted into respective techniques namely, AES and DES. Advanced Encryption Standard (AES) is more popular and widely used symmetric encryption algorithm. With the increasing computing power, it was considered vulnerable against exhaustive key search attack. The Data Encryption Standard (DES) is a symmetric-key block cipher. DES is an implementation of a Feistel Cipher. Once the files are saved in a respective technique, user will get an encrypted key which will act as key to access a particular file. When user needs to access the respective file, users should give a key which will trigger the decryption process on the particular cryptography strategies and merge them into its original file.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 38 | 18A55A0504 | PATINA JYOTSHNA | **Emergency alerts using IOT in industry** |

**Abstract:** In Industries there will be continuous working of machines. The heat produced by the machines leads to fire accidents, that effects human life. Most of the industries are having sensors mechanism to avoid such fire accidents either automatically or manually. To make the above system more efficient and secure in this work we are proposed IoT based alert system such that another level of hierarchy is introduced above the employee/operator level. This helps us by monitoring and controls all the rooms at the same time without any fail.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 40 | 17A51A05D7 | KINTHALI VYSHNAVI | **Real time face detection and recognition using opencv** |

**Abstract:** Facial Detection and Recognition is the fastest biometric technology that is being rapidly developed in this era and is a successful real-time application performed in the zone of computer vision. The detection and recognition biometric systems are performed with the help of OpenCV and deep learning techniques. Deep Learning algorithms involve pre-processing which results in the removal of the noises and helps in providing an overview on the study of face recognition regarding the increasing speed and accuracy of the face recognition process. This work mainly provides convenience in criminal detection, security surveillance systems, etc. The proposed approach involves three phases, the detection phase, the training phase, the recognition phase. In the detection phase, In the training phase, the faces and the names are encoded into a pickle file. In the recognition phase, the live video stream is taken as the input and compares the faces from the pickle file and titles the face by the name.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 40 | 17A51A05F2 | **POTNURU SREEJA** | **Online voting system** |

**Abstract:** In online voting system people can cast their vote through the internet. In order to prevent voter frauds we use two levels of security. A user id and password are used as the first level of security. The data entered by the user is verified with the contents of the database, If the data is correct then application will not open. The User will get an OTP to his registered. Email at the time of logging in to the application as the second level of security, if he/she enters the OTP correct, then the application will open to cast his/her vote. The web page is designed using ASP.NET MVC (Model View Controller) .The ASP page is then connected to the Microsoft SQL server database. The ASP page is served from an IIS server.

| Sl. No. | Roll No. | Name of the Student | Project Title |
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| 41 | 17A51A05F4 | **POTNURU SRUTHI** | **Named Entity Recognition Using Natural Language Processing** |

**Abstract:** In recent years , many works carried out in the field of processing text on code mixed data but —In Social Media, code mixing and code switching take place where users often communicate in two or more languages. The state-of-the-art techniques fail when language identification is done on such code mixed informal texts due to the presence of lexical borrowings, creative spellings and phonetic typing. Therefore, automatic language identification for the code mixed social media texts has become a challenging task in the field of Natural Language Processing(NLP). To overcome the issues in processing  text we use new methodology like NER In the field of Natural Language Processing (NLP), Named Entity Recognition (NER) is one of the major task. The main challenge in this extraction is to extract Entities that lies in the inadequate information available in a tweet. We find that the  machine learning languages like CRF, Decision  tree-based models have given better accuracies in identifying the languages .

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 42 | 17A51A05G3 | SIRUGUDU TEJESWARA RAO | An Advance Machine Learning based Framework for Identification of Dry Beans |

**Abstract:** Agricultural problems are the major concerns of all time research, especially for smart and automatic based farming. Finding seed quality is a definite influential problem in crop production. Therefore, seed classification is essential for both marketing and production to provide the principles of sustainable agricultural systems. Dry beans are one of the useful products of crop agriculture and found in almost all corners of the world. The wide variety of available beans types has made the Agri-researchers to investigate the type of beans of all seasons. Since the last two decades, the applicability of machine learning and its related methods are the hottest topics in the real-life scenario. Many of the diversified real life engineering problems are being solved with machine learning problems. However, some limitations such as unable to fit with big data, nature of data, handling missing values etc. have made the researchers to think about its alternative. So, ensemble learning based methods has taken a major role in solving many complex engineering problems in these days. The primary objective of this project is to provide an advance machine learning algorithm for obtaining uniform seed varieties from crop production, which is in the form of population, so the seeds, are not certified as a sole variety. In this project, an advanced machine learning algorithm-based data driven framework will be on focus to classify 7 different registered dry beans. The outcome of this project will be helpful in classification of bean seed varieties in terms of assuring seed uniformity and quality.

| Sl. No. | Roll No. | Name of the Student | Project Title |
|---|---|---|---|
| 44 | 17A51A05D1 | HARI CHADANA KEMBURU | Malicious node detection and secure transmissions in wireless sensor networks |

**Abstract:** Identification and prevention of malicious nodes is always an interesting research issue in wireless sensor networks. In this project we are proposing an efficient approach for identification of anonymous or malicious node with signature and data rating techniques. Initially every node can be verified genuine or malicious node with signature mechanism and only genuine nodes can communicate with each other based on the data rating of intermediate nodes, priority given to the nodes based of the highest average data rating of in and out data packets and secure transmission of data can be done with Triple Data Encryption Standard(TDES) cryptographic algorithm.

**FACULTY PUBLICATIONS**

| S.No | Academic Year | SCI Journals | Scopus Journals | UGC Journal | Peer-Reviewed | Total Journals |
|---|---|---|---|---|---|---|
| 1 | 2020-21 | 23 | 10 | 01 | 06 | 40 |

| TITLE | *Industrial Internet of Things and its Applications in Industry 4.0: State of The Art' aspect level sentiment analtysis of user generated content* |
|---|---|
| AUTHOR DETAILS | **Dr. Janmenjoy Nayak, Assoc. Prof ,CSE,AITAM,**<br>**Praveen Kumar Malik, Rohit Sharma, Rajesh Singh, Anita Gehlot, Suresh Chandra Satapathy, Waleed S. Alnumay, Danilo Pelusi, Uttam Ghosh** |
| Journal | *Computer Communications* |
| ABSTRACT | Industrial Internet of Things (IIoT) is a convincing stage by interfacing different sensors around us to the Internet, giving incredible chances for the acknowledgment of brilliant living. It is a fast growing technology in the present scenario. IIoT has its effect on almost every advanced field in the society. It has impact not only on work, but also on the living style of individual and organization. Due to high availability of internet, the connecting cost is decreasing and more advanced systems has been developed with Wi-Fi capabilities. The concept of connecting any device with internet is "IIoT", which is becoming new rule for the future. This manuscript discusses about the applications of Internet of Things in different areas like — automotive industries, embedded devices, environment monitoring, agriculture, construction, smart grid, health care, etc. A regressive review of the existing systems of the automotive industry, emergency response, and chain management on IIoT has been carried out, and it is observed that IIoT found its place almost in every field of technology. |

| TITLE | *Intelligent food processing: Journey from artificial neural network to deep learning* |
|---|---|
| AUTHOR DETAILS | **Janmenjoy Nayak, Kanithi Vakula, Paidi Dinesh, Bighnaraj Naik, Danilo Pelusi,** |
| Journal | *Computer Science Review* |

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|---|---|
| **ABSTRACT** | Since its initiation, ANN became popular and also plays a key role in enhancing the latest technology. With an increase in industrial automation and the Internet of Things, now it is easier than ever to collect data and monitor food drying, extrusion, and sterilization, etc. In this industrial revolution, the uses of ANN are found successful in food processing tasks like food grading, safety, and quality check, etc. In recent years, attention on shallow learning approach (i.e. use of earlier developed ANNs) in food processing is escalating as researchers found it extensive exploitation in resolving a lot of complex real-world problems in food processing. In this row, deep learning techniques have not left any stone unturned in the context of intelligent food processing paradigm. In this paper, a detailed analysis has been reported on the advancements of food processing using ANNs, which include the details journey from shallow learning to deep learning in the applications space. Such fusion of technology with the forefront of machine learning, deep learning, and image processing for food processing, is not just the mixture of hybrid concepts, rather it provides a scope to create new dimensions and growth opportunities for each innovation.<br>Keywords: Food processing; Artificial intelligence; Artificial neural network; Machine learning; Deep learning |

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|---|---|
| **TITLE** | *Deep learning in electrical utility industry: A comprehensive review of a decade of research* |
| **AUTHOR DETAILS** | **Manohar Mishra, Janmenjoy Nayak, Bighnaraj Naik, Ajith Abraham** |
| **Journal** | *Engineering Applications of Artificial Intelligence* |
| **ABSTRACT** | Smart-grid (SG) is a new revolution in the electrical utility industry (EUI) over the past decade. With each moving day, some new advanced technologies are coming into the |

picture which forces the utility engineers to think about its application to make the electrical grid become smarter. Artificial intelligence (AI) techniques such as machine learning (ML), artificial neural network (ANN), deep learning (DL), reinforcement learning (RL), and deep-reinforcement learning (DRL) are the few examples of above-mentioned advanced technologies by which large volume of collected information being processed, and deliver the solution to the complex problems associated with EUI. In recent times, DL for artificial intelligence applications has gained huge attention in the diverse research area. The traditional ML techniques have several constrained for processing the data in raw form. However, the DL provides the options to process the raw data without extracting and selecting the feature vector. The DL techniques belong to a new era of AI development. This article presents the taxonomy of DL algorithms available in the literature applied to different problems in EUI. The main objective of this survey is to provide a comprehensive idea to the researcher/utility engineer about the applications and future research scope of DL methods for power systems studies.
Keywords: Artificial intelligence; Deep learning and machine learning electricity demand forecasting; Fault detection and classification; Power quality; Smart-grid and microgrid; Solar-photovoltaic and wind forecasting

| TITLE | Extra-tree learning based Socio-economic factor analysis and multi-class adaptive boosting meta-estimator for prediction of agricultural productivity |
|---|---|
| AUTHOR DETAILS | Janmenjoy Nayak, Bighnaraj Naik, Pandit Byomakesha Dash, |
| Journal | Indian Journal of Science and Technology |

**ABSTRACT**

**Background/Objectives:** In socio-economic factor analysis, the observed data are essential in the random distribution for the adequate representation of the random components associated with various factors and lead to poor prediction in the case of the Logit and Probit model. The objective of this work is to have machine learning based model for socio-economic factors analysis and ensemble learning based model for efficient prediction of agricultural productivity. **Methods:** In this work, extra-tree classifier machine learning model based socio-economic factors selection has been used and found capable to evaluate the socio-economic factors that contain relevant information to the target variable agricultural productivity. In addition to this, the multi-class adaptive boosting ensemble learning approach is used for the prediction of agricultural productivity of respondents (farmers) from their socio-economic profiles. This proposed research has been evaluated by using the test case of analyzing the socio-economic factors of the farmers affecting agricultural productivity in Sambalpur District, of Odisha State, India.The farmers' socio-economic data are collected by using structured interviews through questionnaires that are in line with standard Participatory Rural Appraisal. **Findings:** It is found that the proposed approach of socio-economic factor identification is efficient for computing the relationships between socioeconomic factors and agricultural productivity. **Novelty:** In this application domain of socio-economic factor analysis, the proposed method employs extra-tree classifier and boosting ensemble learning for socio-economic factor analysis towards agricultural productivity which is found efficient than other existing approaches such as Logit, Probit, Linear Regression, Linear Discriminant Analysis, Naïve Baise, and other counterparts.

| TITLE | *Deep neural network based anomaly detection in Internet of Things network traffic tracking for the applications of future smart cities* |
|---|---|
| AUTHOR DETAILS | **Dukka KarunKumar Reddy,Himansu Sekhar Behera,Janmenjoy Nayak,Pandi Vijayakumar,Bighnaraj Naik,Pradeep Kumar Singh** |
| Journal | *Trans Emerging Tel Tech -WILEY* |
| ABSTRACT | An anomaly exposure system's foremost objective is to categorize the behavior of the system into normal and untruthful actions. To estimate the possible incidents, the administrators of smart cities have to apply anomaly detection engines to avert data from being jeopardized by errors or attacks. This article aims to propose a novel deep learning-based framework with a dense random neural network approach for distinguishing and classifying anomaly from normal behaviors based on the type of attack in the Internet of Things. Machine learning algorithms have the improbability to explore the performance, compared with deep learning models. Distinctively, the examination of deep learning neural network architectures achieved enhanced computation performance and deliver desired results for categorical attacks. This article focuses on the complete study of experimentation performance and evaluations on deep learning neural network architecture for the recognition of seven categorical attacks found in the Distributed Smart Space Orchestration System traffic traces data set. The empirical results of the simulation model report that deep neural network architecture |

| | performs well through noticeable improvement in most of the categorical attack. |
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| TITLE | **Deep learning and wavelet transform integrated approach for short-term solar PV power prediction** |
|---|---|
| AUTHOR DETAILS | **Manohar Mishra, Pandit Byomakesha Dash, Janmenjoy Nayak, Bighnaraj Naik, Subrat Kumar Swain** |
| Journal | Measurement |
| ABSTRACT | A novel short-term solar power prediction model is presented in this work, by utilizing the learning ability of Long-Shot-Term-Memory network (LSTM) based deep learning (DL) technique and the concept of wavelet transform (WT). In this proposed WT-LSTM model, the WT is used to decompose the recorded solar energy time-series data into different frequency series followed by the statistical feature extraction process. The LSTM with dropout based DL model is proposed to predict the futuristic value of solar energy generation in different time-horizon (hourly and day basis), where the statistical WT based features combined with several other meteorological factors such as temperature, wind speed, pressure, cloudy-index, humidity and altimeter index are modelled as input to the LSTM model. The efficiency of the suggested WT-LSTM model has been proved by comparing statistical performance measures in terms of RMSE, MAPE, MAE and R2 score, with other contemporary machine learning and deep-learning based models.
Keywords: Deep learning; Long-Shot-Term-Memory network; Dropout; Short-term forecasting; Solar PV |

| TITLE | **Firefy Algorithm in Biomedical and Health Care: Advances, Issues  and Challenges** |
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| AUTHOR DETAILS | Nayak .J., Naik, B., Dinesh, P. et al |
|---|---|
| Journal | SN Computer Science |

| ABSTRACT | Since the past decades, most of the nature inspired optimization algorithms (NIOA) have been developed and become admired due to their effectiveness for resolving a variety of complex problems of dissimilar domain. Firefly algorithm (FA) is well-known, yet efficient nature inspired swarm intelligence (SI) based metaheuristic algorithm. Since from its initiation, FA has become well-liked between the researchers due to its competence and turn out to be an interesting technique for the practitioners as well as researchers for solving the problems of numerous fields of research such as classifications, clustering, neural networks, biomedical engineering, healthcare as well as other research domain. Moreover, there is an outstanding track record of FA in solving biomedical engineering (BME) and healthcare (HC) problems. Abundant complexities have been worked out with the assist of FA and its variants. By taking these particulars into concern, in this paper, a first ever in-depth analysis has been addressed on the variants, importance, applications as well as enhancements of FA in BME as well as HC. The major intention behind this investigative work is to motivate the researchers to improve and innovate new solutions for multifaceted problems of healthcare and biomedical engineering using FA. |

| TITLE | *Advancement from neural networks to deep learning in software effort estimation: Perspective of two decades* |
|---|---|
| AUTHOR DETAILS | **P. Suresh Kumar, H.S. Behera, Anisha Kumari K, Janmenjoy Nayak, Bighnaraj Naik** |
| Journal | *Computer Science Review* |

**ABSTRACT**

In the software engineering, estimation of the effort, time and cost required for the development of software projects is an important issue. It is a very difficult task for project managers to predict the cost and effort needed in the premature stages of planning. Software estimation ahead of development can reduce the risk and increase the success rate of the project. Many traditional and machine learning methods are used for software effort estimation by researchers, but always it has been a challenge to predict the effort accurately. In this study, different Artificial Neural Network (ANN) used for effort estimation is discussed. It is observed that the prediction of software effort by using ANN is more precise and better compared to traditional methods such as Function point, Use-case methods and COCOMO etc. Models based on neural networks are competitive in nature as compared to statistical and traditional regression methods. This paper explains the overview of various ANN such as basic NN, higher order NN, and deep learning networks used by the researchers for software effort estimation.

Keywords: Software effort estimation; Artificial neural networks; Higher order neural networks; Deep learning neural networks

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| **TITLE** | *An impact study of COVID-19 on six different industries: Automobile, energy and power, agriculture, education, travel and tourism and consumer electronics* |
| **AUTHOR DETAILS** | **Janmenjoy Nayak,Manohar Mishra,Bighnaraj Naik,Hanumanthu Swapnarekha,Korhan Cengiz,Vimal Shanmuganathan** |
| **Journal** | **Expert Systems** |
| **ABSTRACT** | The recent outbreak of a novel coronavirus, named COVID-19 by the World Health Organization (WHO) has pushed the global economy and humanity into a disaster. In their |

attempt to control this pandemic, the governments of all the countries have imposed a nationwide lockdown. Although the lockdown may have assisted in limiting the spread of the disease, it has brutally affected the country, unsettling complete value-chains of most important industries. The impact of the COVID-19 is devastating on the economy. Therefore, this study has reported about the impact of COVID-19 epidemic on various industrial sectors. In this regard, the authors have chosen six different industrial sectors such as automobile, energy and power, agriculture, education, travel and tourism and consumer electronics, and so on. This study will be helpful for the policymakers and government authorities to take necessary measures, strategies and economic policies to overcome the challenges encountered in different sectors due to the present pandemic.

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|---|---|
| **TITLE** | *Recognition of Learners' Cognitive States using Facial Expressions in E-learning Environments* |
| **AUTHOR DETAILS** | Karu Prasada Rao, **Research Scholar Dept of CSE, ANU, Guntur, Andra Pradesh, India.** <br> Dr. M.V.P Chandra Sekahara Rao, **Professor** Dept of CSE, RVR & JCCE, Guntur, Andra Pradesh, India. |
| **Journal** | **Journal of University of Shanghai for Science and Technology** |
| **ABSTRACT** | Technological developments in e-learning systems provide new opportunities for students to enhance academic growth and improve access to education. E-learning is on the rise because it has advantages over conventional learning. The need for time is a faster and simpler learning experience. The spread of the coronavirus disease (COVID-19) pandemic has resulted in school closures around the world. More than one billion students are out |

of the classroom worldwide. As a consequence, education has taken on a new shape, with a major increase in e-learning, whereby teaching is carried out online and on digital platforms. The scope of this research is to identify the facial expressions of the students and then link these expressions to the cognitive states. This paper presents a hybrid-CNN model to recognize a learner's cognitive state using the manually engineered features and features extracted from the convolutional neural network. In addition, the performance of the model is compared with the manual feature extraction method and CNN methods separately. The proposed method trained and tested with the spontaneous database(DAiSEE) created exclusively for the e-learning environment, and with the state-of-the-art datasets such as JAFFE and CK+. The model has achieved 53.4%, 71.4%, and 99.95% respectively.

| TITLE | SMART VEHICLE MONITORING USING IOT |
|---|---|
| AUTHOR DETAILS | Palakollu Srinivasarao , Manchala Yugandhar |
| Journal | *Journal of Critical Reviews* |
| ABSTRACT | In today's date vehicles has become basic necessity of the society. The necessity and comforts of living a human life and the lifestyles all are customized so that, rather than utilizing open transportation each individual needs to claim a vehicle which may results in more number of accidents. So to develop the safety measure for preventing accidents, automobile industry is on need of more features. IOT compromises various extraordinarily recognizable gadgets able to do computing a wide range of networks. Improvement of security highlights to forestall alcoholic and lazy driving is one of the specialized changes looked by the vehicle business. This paper points towards the location |

of languor using pulse sensor and even features smashed identification utilizing liquor sensor which is connected and implemented by an Arduino board which alerts when driver of the vehicle is feeling some drowsiness by using a buzzer. If liquor level in the driver's body is beyond the limit the information will be sent to the contacts that are saved in GSM. This system with another innovation through which it can realize vehicle condition and raise an alert with GSM module.

| TITLE | A Critical study of Adaptive Boosting and Stacking Ensemble Approaches for Liver Disease Prediction |
|---|---|
| AUTHOR DETAILS | Sivala Vishnu Murty, Dr. R.Kiran Kumar |
| Journal | *IJRECE* |
| ABSTRACT | Machine Learning algorithms are often used on liver datasets to predict the diseases automatically so as to help the doctors to predict the disease accurately and quickly. Liver disease patients are increasing day by day due to change in life style, food habits, and culture. Recent research studies have shown that traditional classification approaches do not give accurate results and often leading to over fitting models .Hence, there is a need for using modern ensemble classification approaches for liver disease prediction for more accurate prediction of liver diseases. In this backdrop, we collected Clinical data (Liver Function Test data) from north coastal districts of Andhra Pradesh and experimented with modern ensemble techniques like adaptive Boosting and stacking and evaluated their performances for liver disease prediction on the liver data sets collected north coastal districts of Andhra Pradesh, India Keywords--- Data mining, Liver Disease, Machine Learning, boosting, stacking, Classification |

| TITLE | ANTI THEFT PROTECTION FOR ATM USING IOT |
|---|---|
| AUTHOR DETAILS | D.Sreenu Babu, V.V.Suma, S.Balaraju, R.Sunil , S.Vineetha |
| Journal | IJCRT |
| ABSTRACT | In this period of digitalization, everybody needs cash without cooperation with bank whenever. So the ATM (Automotive Teller Machines) are introduced wherever in the areas. As the quantity of ATMs expanded, anticipation of robbery and security of client is the prime goal. At present, security frameworks are not exceptionally made sure about as they are given alert framework. This undertaking bargains with plan and execution of ATM security framework utilizing pizeo electric sensor , GSM and GPS module. Index Terms –GPS, vibration sensor, IOT, ATM robbery, ATM Security. |

| TITLE | Intelligent socio-economic status prediction system using machine learning models on Rajahmundry AP, SES dataset |
|---|---|
| AUTHOR DETAILS | V Balasankar, Suresh Varma Penumatsa, PanduRanga Vital Terlapu |
| Journal | *IJST* |
| ABSTRACT | **Background:** Developing economic and social systems and assuring the efficiency of economic and social processes is the major task for the government of any country. Predictable machine learning (ML) models are used for analyzing data sets that allow more efficient enterprise management. Now a day, the research on Socio-Economic Status (SES) and Machine Learning (ML) is very crucial to find socio-economic inequalities, and take further actions that are preventions, protections, and uppressions. **Objectives:** The mainobjective of this research is to nderstand the Socio Economic System issues and edicting SES levels on particular area like |

Rajahmundry, AP, India using statistical analysis and machine learning methodologies. **Methods:** In this, we analyze the data that is collected from Rajahmundry (Rajamahandravaram),Andhra Pradesh, India with 48 feature attributes (dimensions), and one target four class attribute (poor, rich, middle, upper-middle ). The SES levels like poor, rich, middle, and upper-middle classes are predicted by 5 ML algorithms. **Findings:** In this paper, we conduct the statistical analysis of each attribute, and analyze and compare the performance accuracies using confusion matrix, performance parameter (classification accuracy, Precision,Recall, and F1) values and receive operating characteristic (ROC) under AUC values of five efficient ML algorithms like Naïve Bayes, Decision Trees (DTs), k-NN, SVM (kernel RBF) and Random Forest (RF). We observed that the RF algorithm showed better results when compared with other algorithms for the Rajahmundry AP SES dataset. The RF algorithm performs 97.82% of classification accuracy (CA) and time is taken for model construction 0.41 seconds. The next superior performed ML model is DTs with 96.67% of CA and 0.16 seconds for model construction. **Novelty:** Comprehensive analysis indicates that the novel AP SES Dataset with empirical statistical analysis gives the good results and predicts the SES levels with RF model is very effective.

**Keywords:** Machine Learning; socio-economic status; Rajahmundry;household; poverty

| TITLE | A Novel Deep Learning Approach for Voice Based Form Filling (VBFF) using Bi-LSTM Model |
|---|---|

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|---|---|
| **AUTHOR DETAILS** | **Dr. T. PanduRanga Vital, P.P.P.Premchand, M.Naveen Kumar, S.Lakshmi Priya, P.Aravind** |
| **Journal** | **Mukt Shabd Journal** |
| **ABSTRACT** | Recently there has been a tremendous increase in use of biometric features such as voice, fingerprints, face, iris etc in recognition systems. Speech recognition is an AI technology that can allow software programs to recognize spoken language and convert it into text. Here, we are using mainly speech recognition. Our application recognizes the user's speech,analyze the person specific voice and then converts the speech to text format. This text is passed as an input to deep learning model which identifies the entities and fills into respective fields ofa form based on the labels associated with the entitieswithout any manual efforts. We have created the model which can be used in multiple domains like banking, railway, medical, educational sectors etc., by simply changing the dataset. For instance, we have created an application for bank deposit form |

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|---|---|
| **TITLE** | **Personalized Publishing of Data with Multiple Sensitive Attributes based on Sensitivity Level** |
| **AUTHOR DETAILS** | **Ram Prasad Reddy Sadi, Pandu Ranga Vital Terlapu** |
| **Journal** | *Solid State Technology* |
| **ABSTRACT** | Data publishing scenario without compromising privacy and utility is challenging and essential for individuals, researchers and data providers. Much of the research work in this direction assumes that each individual is associated with only one record in a dataset and has only sensitive attribute, which really is not realistic in real world scenarios. If the person |

possessing multiple sensitive attributes appears more than once in the dataset, several privacy breaches might take place. The practical scenarios in privacy preserving data publishing with each individual appearing multiple times and each occurrence having multiple sensitive attributes has not attracted much attention of researchers. We call such datasets as (1:M:N)-datasets. This paper attempts to provide a new privacy model, (k,l,s)-covering model that tends to exposure chances in (1:M:N)-dataset distributing. This paper also includes personalization where a user has the privilege to specify whether to disclose the data or not. We also present an effective generalization algorithm, (1:M:N)-generalization, as part of the model, to retain privacy and the same time provide utility for the published data. The model is tested on real world datasets and the results showed excellent improvement with respect to utility of the data and execution time when compared to other existing approaches.

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|---|---|
| **TITLE** | *A Study on Static Call Admission Control Policies for Wireless Mobile Cellular Networks*' |
| **AUTHOR DETAILS** | *Promod Kumar Sahu, Hemanta Kumar Pati, Sateesh Kumar Pradhan* |
| **Journal** | *Intelligent Computing in Control and Communication* |
| **ABSTRACT** | In wireless mobile cellular networks call admission control (CAC) plays an important role in Quality of Service (Qos) provisioning. During last three decades it has been acquiring enormous interest due to the growing demand of wireless communication. In wireless systems for first and second generations CAC schemes were designed considering a single class of service i.e. voice. However, third generation (3G) and further wireless systems providing multimedia services such as voice, video and data are extended with different QoS forms under homogeneous and heterogeneous |

| | networks. Accordingly, more refined CAC methods are developed to confront with the above-mentioned changes. In this paper, we provide an overall study on the static CAC schemes used in wireless mobile cellular networks. |
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| TITLE | **A Study on CAC Schemes for Homogeneous and Heterogeneous Wireless Cellular Networks** |
|---|---|
| **AUTHOR DETAILS** | Promod Kumar Sahu, Hemanta Kumar Pati, Sateesh Kumar Pradhan |
| **Journal** | International Conference on Computing, Communication, and Intelligent Systems (ICCCIS) |
| **ABSTRACT** | In mobile wireless cellular network call admission control (CAC) is one of the key point. During last three decades CAC in wireless cellular network has been acquiring a huge attention due to the increasing demand of wireless communication. In the first and second generation wireless systems CAC schemes are developed in the context of single service. However, in the third and higher generation wireless systems multimedia services that include voice, video and data are to be supported with different Quality of Service (QoS) forms under homogeneous and heterogeneous networks. To confront with these changes more refined CAC schemes are developed. In this paper, we provide a study on CAC schemes used in homogeneous and heterogeneous wireless mobile cellular networks. |

| TITLE | **Gold Price Forecasting Using Machine Learning Techniques: Review of a Decade** |
|---|---|
| **AUTHOR DETAILS** | Das S., Nayak J., Kamesh Rao B., Vakula K., Ranjan Routray A. |
| **Journal** | Computational Intelligence in Pattern Recognition |

| ABSTRACT | Price of the gold plays a major role in monetary as well as financial systems. Prediction and forecasting the upcoming tendency of gold prices and other valuable metals will be helpful for investors and money managers to evade choosing when to supply this commodity. Central banks throughout the globe uphold gold reserves to assure the currency holders, the money of their shareholders, and foreign-debt creditors. They also utilize the gold treasury as a means to manage inflation and toughen their country's economic standing. During this procedure, the prediction of the gold rate has become the biggest issue now a days. So, various methods, especially intelligent techniques, have played a vital role in predicting gold prices. Moreover, a comparative investigation on the impact of machine learning (ML) algorithms such as support vector machine (SVM), random forest (RF), linear regression (LR), decision tree (DT), and other hybrid methods for gold price forecasting has been made. Some significant research directions for additional research on gold price prediction are highlighted which may assist the researchers to widen proficient intelligent techniques for the prediction of gold rate. |
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| TITLE | *Machine Learning and Big Data in Cyber-Physical System: Methods, Applications and Challenges* |
|---|---|
| AUTHOR DETAILS | Janmenjoy Nayak,P. Suresh Kumar,Dukka Karun Kumar Reddy,Bighnaraj Naik,Danilo Pelusi |
| Journal | *Cognitive Engineering for Next Generation Computing: A Practical Analytical Approach* |
| ABSTRACT | *One of the most considerable and emerging methodologies, defined by the integration of physical and computational processes as cyber-physical systems. These systems are* |

*emphasized to supervise the data processing and synchronize it among the cyber computational processes and physically connected systems. Machine learning crafts the intelligent control process by instilling astute self-learning processes with automated and indicative capabilities. The main point of this literature is to give overall survey of cyber-physical system challenges and to accomplish the ideal degree of integration in automation and intelligence in diverse domains for the progress of emerging systems. This chapter aims to provide the advances and challenges for significant research and development of existing and future cyber physical-based technologies using machine learning methods. The research challenges are primarily summarized as i) large-scale data collection, in the integration of systems from IoT, smart cities as well as industries, ii) the synchronization of interconnectivity and intelligence of these frameworks requires a shared perspectives model with decision making, iii) control technique, management service, model-based design, network security, and resource allocation, iv) safety, security, robustness, and reliability is a vital challenge because of errors, security attacks, improbability in the environment, security, and protection of physical systems.*

| TITLE | ***Impact of IoT in Healthcare: Improvements and Challenges*** |
|---|---|
| **AUTHOR DETAILS** | H. Swapna RekhaJanmenjoy NayakEmail authorG. T. Chandra SekharDanilo Pelusi |
| **JOURNAL** | The Digitalization Conundrum in India |
| **ABSTRACT** | Since last one decade, IoT has been a challenging field of application for the simulation in real-time environment. Rapid changes in information and communication technologies have assisted to the wider usage of Internet of Things (IoT) in areas such as |

|  | intelligent transport systems, intelligent cities, intelligent healthcare, intelligent homes, intelligent grid, industry automation, smart farming and many others. Among them healthcare has always been a hot interest among various research communities and is a rapidly growing area with the advancement of technology. Managing health issues is becoming a serious factor in healthcare system, as insufficient healthcare services are available to meet the increasing demands of ageing population with chronic diseases. So, the world healthcare system needs the transformation from clinic-centric environment to personalized information allied environment. In modern healthcare system, physicians and patients can be brought together with the usage of IoT technologies for automated and efficient monitoring of daily activities of all age group people and to provide 'one-stop' service to people at remote locations by network architecture that provides continuous monitoring of body signals based on sensors. As rapid development occurred in controlling healthcare, this research aims in describing the history, development of futuristic studies and standard assessment of emerging technologies of IoT in healthcare system. Further, various factors affecting the health concerns are disseminated through the latest findings of IoT which will serve as basis of information for scientist, technocrats, researchers and common people in and beyond to this area. This research work also provides an approach to future trends, advancement in the technology made so far and to cope with the challenges such as management of data, compatibility, security, adaptable and privacy. |
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| TITLE | *Identification and classification of hepatitis C virus: an advance machine-learning-based approach* |
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|---|---|
| **AUTHOR DETAILS** | Janmenjoy Nayak [1] ; Pemmada Suresh Kumar [2] ; Dukka Karun Reddy [2] ; Bighnaraj Naik [3] |
| **JOURNAL** | IET Digital Library |
| ABSTRACT | Hepatitis C virus (HCV) is identified as one of the leading sources of liver disease transmitted through blood-to-blood contact worldwide. HCV contamination is flattering a foremost universal health challenge, and due to its complications, more than 3 million new infectious patients along with 350,000 deaths are occurring every year. In the future, hepatitis C (HC) may be considered as one of the reasons for malaise and fatality of human, as it has been estimated that nearly 170 million have been infected by this. The last decades of medical research are evident that detecting and finding solutions for HC has remained a major concern in Egypt. As Egyptian blood donors were found highest among other blood donors from all nationalities, HCV became a major community health concern. To cope with such a problem, some of the statistical-based approaches are being developed and became a partial solution to some extent. To address the challenges of healthcare, a wide range of tools, techniques, and frameworks have been offered by machine learning (ML). As ML approaches have the capability of determining and recognizing patterns in complex datasets, they are identified as the best connectionist systems to predict the future outcomes of the HCV. In this chapter, we propose experimental investigations on the study of various ML approaches for the diagnosis of associated risk factors, cofactors promoting its progression, complications in the prevention and control of HCV in Egypt. Further, the project will focus on some of the basic ML strategies along with the challenges of handling the HC disease. |

| TITLE | *CatBoost Ensemble Approach for Diabetes Risk Prediction at Early Stages* |
|---|---|
| AUTHOR DETAILS | P. S. Kumar, A. K. K, S. Mohapatra, B. Naik, J. Nayak and M. Mishra |
| JOURNAL | *ODICON 2021* |
| ABSTRACT | Diabetes prediction at the early stage is an important issue in the healthcare field and helps an individual to avoid dangerous situations by initiating treatment. For the prediction of diabetes at the early stages, many techniques in the area of machine learning and ensemble learning have been used. In this paper, we propose an ensemble technique CatBoost which is a Gradient Boosting Decision Tree (GBDT) for diabetes prediction at early stages. The experiment is conducted by comparing the performance of CatBoost with other machine learning methods such as K-Nearest neighbor, Multi-layer perceptron, Logistic regression, Gaussian Naive Bayes, and Stochastic gradient descent and the result is evaluated using accuracy, precision, recall, f1-score, and AUC-ROC curve. Experimentation is conducted using the dataset available in the UCI machine learning repository named "Early stage diabetes risk prediction". The results prove that CatBoost outperforms compared to the other machine learning methods. |

| TITLE | *QCM Sensor-Based Alcohol Classification by Advance Machine Learning Approach* |
|---|---|
| AUTHOR DETAILS | B. Kameswara RaoP. Suresh KumarDukka Karun Kumar ReddyJanmenjoy NayakEmail authorBighnaraj Naik |
| JOURNAL | Intelligent Computing in Control and Communication |
| ABSTRACT | The consumption of alcohol is a general trend in many persons. But intense drinking will be disruptive and dangerous. The excessive intake of alcohol is allied with a selection of unconstructive consequences that include nonfatal and fatal issues, academic failure, assault, violence and many other consequences that could lead to |

jeopardizing future prospects. So, the classification prototype approaches with the exploit of sensors for gas detection collectively play an excellent job in the classification and recognition of alcohol chemical compounds and their detrimental effects. Alcohols comprise a vast portion of chemical compounds, as given in "QCM Sensor Dataset" with QCM3, QCM6, QCM7, QCM10, QCM12. The five special types of alcohols: 1-octanol, 1-propanol, 2-butanol, 2-propanol, and 1-isobutanol are classified using quartz crystal microbalance (QCM) sensors with varied structures. The objective of this study is to establish the most affluent classification for the QCM sensor. In this research, Gradient boosting classifier based classification approach is proposed and its performance is compared with other competent methods such as Linear discriminant analysis, Logistic regression, Decision tree. The results are evident that, Gradient boosting is the most successful technique compared to the other classification methods on the all the five sensor data from QCM.

| TITLE | *Deep Learning for COVID-19 Prognosis: A Systematic Review* |
|---|---|
| AUTHOR DETAILS | H. Swapna Rekha,Himansu Sekhar BeheraJanmenjoy Nayak,Bighnaraj Naik |
| JOURNAL | Intelligent Computing in Control and Communication |
| ABSTRACT | In the twenty-first century, the novel coronavirus (COVID-19) with its origin in the city of Wuhan has been spreading expeditiously and infecting more than 4.9 million population of the world as of May 19, 2020. As it is inducing serious threat to the global health, it is necessary to develop accurate prediction models and early diagnosis tools of COVID-19 to empower healthcare specialist and government authorities to control the spread of the pandemic. The latest advances in the intelligent computing particularly deep learning approaches are providing a wide range of efficient methods, paradigms and tools in the interpretation and prophecy of COVID-19. In this paper, a perspective research on the ongoing deep |

learning approaches has been carried out. In this study, an analysis of the different approaches of deep learning techniques in the forecasting, classification and detection of COVID-19 has been performed. The main motive of this research is to facilitate the researchers and technocrats with some critical research briefing that may further assist in developing more adequate prototypes for the analysis and diagnosis of COVID-19.

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|---|---|
| **TITLE** | *Advanced Machine Learning Approaches in Cancer Prognosis* |
| **AUTHOR DETAILS** | Janmenjoy NayakMargarita N. FavorskayaSeema JainBighnaraj NaikManohar Mishra |
| **JOURNAL** | Intelligent Systems Reference Library, Springer |

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|---|---|
| **TITLE** | *Handbook of Computational Intelligence in Biomedical Engineering and Healthcares* |
| **AUTHOR DETAILS** | Janmenjoy Nayak, Bighnaraj Naik, Danilo Pelusi, Asit Kumar Das |
| **JOURNAL** | Elsevier |

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|---|---|
| **TITLE** | *Electronic Devices, Circuits, and Systems for Biomedical Applications* |
| **AUTHOR DETAILS** | Suman Tripathi, Kolla Prakash, Valentina Balas, Sushanta Mohapatra, Janmenjoy Nayak |
| **JOURNAL** | Elsevier |

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|---|---|
| **TITLE** | *Intelligent and Smart Computing in Data Analytics* |

| AUTHOR DETAILS | Siddhartha Bhattacharyya, Janmenjoy Nayak, Kolla Bhanu Prakash, Bighnaraj Naik, Ajith Abraham |
|---|---|
| JOURNAL | Advances in Intelligent Syst., Computing, Springer, Singapore |

| TITLE | *Empirical Statistical Analysis and Cluster Studies on Socio-Economic Status (SES) Dataset* |
|---|---|
| AUTHOR DETAILS | V. Balasankar, Suresh Suresh Varma Penumatsa, T. Pandu Ranga Vital |
| JOURNAL | IOP Conference Series: Materials Science and Engineering |
| ABSTRACT | Socio-economic status (SES) levels and conditions are extremely influential variables in the study of a particular area of society or any society. Social factors, for instance, the position of caste, religion, marital status, education levels, give good assessment results for us about a person's goals and the method of achieving their objectives. Generally economic status of any family is needy upon the social factors, for instance, the size of the family, educators in family and levels, and the level of the friendly environment in the family. SES with machine learning (ML) especially cluster analysis is important to identify important features or dimensions of the SES dataset, evaluate the rakings of dimensions and dimensional reductions. In this research, we collected 1742 samples (household information) as per socio-economic ratios and area (rural and urban) wise ratios with good questionnaires between 2018 and 2019 from Rajamahandravaram, East Godavari District, AP, India. We conduct the statistical analysis and cluster analysis for identifying the important factors of SES levels and their problem analysis. In cluster analysis, we apply k-means, hierarchal clustering (HC), and hierarchal with principal component analysis |

(PCA). The good projection results related to HC and PCA-HC specifies passements of SES class values

| TITLE | *Empirical study on Uddanam chronic kidney diseases (UCKD) with statistical and machine learning analysis including probabilistic neural networks* |
|---|---|
| **AUTHOR DETAILS** | *T. PanduRanga Vital* |
| **JOURNAL** | Handbook of Computational Intelligence in Biomedical Engineering and Healthcare |

**ABSTRACT**

According to the WHO, Uddanam (coastal zone of Srikakulam region of A.P., India) is the spot with the most elevated concentrated incessant kidney disease in the midst of three areas on the Earth that Uddanam chronic kidney disease (CKD) is in the third position, first and second poisons are Nicaragua and Sri Lanka in the world. Uddanam in the north coastal region of Andhra Pradesh, India comprises of mandals (subareas), i.e., Sompeta, Paalasa, Itchaapuram, Vagrapukoturu, and Kaveti, and there are in excess of 100 towns altogether. According to 2015 reports from WHO it was prefigured that in excess of 4500 individuals succumbed to CKD over the most recent 10 years [around 34,000 individuals CKD in Uddanam in recent days]. CKD seems to affect horticultural laborers and cultivators or ranchers mostly, who have been developing cashew and coconut as their fundamental harvest. This research includes processing and summarizing of data and ranking the attributes to CKD dataset. Thereafter, Machine Learning Algorithms like Naïve Bytes, k-NN, Logistic Regression, and C4.5 Support Vector Machines are applied, and their performance is tallied among themselves, followed by comparison with Probable Neural Networks. The Probabilistic Neural Networks model is preferably suitable for prediction and prevention of CKD as it is comparatively more

| | accurate than any other algorithm and predicts CKD with 100% accuracy at eight hidden neurons in the hidden layer of PNN. The PNN automatic diagnosis CKD tool determination will be of great help to the doctors, analysts, and government to prevent and identify the CKD in earlier stages within shorter time span and squat money for patients' survival. |
|---|---|

| TITLE | *Probabilistic Neural Network-based Model for Identifcation of Parkinson's Disease by using Voice Profile and Personal Data* |
|---|---|
| AUTHOR DETAILS | T. Pandu Ranga Vital, Janmenjoy Nayak, Bighnaraj Naik & D. Jayaram |
| JOURNAL | Arabian Journal for Science and Engineering |
| ABSTRACT | Parkinson's disease (PD) is an aging neurological disease deficiencies dopamine and occupies the second position among the neurological disease after the Alzheimer's in the world. The identification of PD in the early stage is extremely advanced and expensive. Many researchers investigated on PD in divergent ways and different approaches to identifying the PD in the early stage with low cost. One of the effective approaches such as PD voice analysis is an important topic in the current decade. In this paper, a novel probabilistic neural network-based approach is proposed for analyzing the PD. The major objective of this paper is to develop a highly accurate probabilistic neural network-based intelligent approach for the identification and classification of PD diseases. The inputs are considered as 1200 sound records as vowel vocalizations 'a', 'e', 'i', 'o', and 'u' in different timings (morning, mid-day, and night) of the day from 62 PD and 51 non-PD individuals. From the experimental analysis, it is evident that the performance of the dataset with PNN is increased proportionally to the incremental neurons in the hidden layer of PNN up to seven and it is found 100% accuracy with minimum time and gradient values. The |

| | projected PNN model with seven hidden layer neurons is a very powerful tool for predicting the PD in early detections with minimum cost. Comparative analysis with other standard machine learning approaches is evident towards the superiority of the proposed PNN model performance for successful identification of PD through voice analysis. |
|---|---|

| TITLE | **Exploiting of Classification Paradigms for Early diagnosis of Alzheimer's disease** |
|---|---|
| AUTHOR DETAILS | G Stalin Babu1 , S.N.Tirumala Rao2 , R Rajeswara Rao3 |
| **JOURNAL** | IT in Industry |
| **ABSTRACT** | Alzheimer's disorder is an incurable neurodegenerative disease that ordinarily affects the aged population. Coherent automated assessment methods are essential for Alzheimer's disease diagnosis in early from distinct images modalities using Machine Learning. This article focuses on exploring various feature extraction and classification methods for early detection of AD proposed by researchers and proposes a modern predictive model that includes Voxel based Texture analysis of brain images for extract features and Optimized Classifier Deep Convolution Neural Network (DCNN) employed for enhance accuracy. Keywords: Alzheimer's disease (AD), DCNN, Feature Extraction. |

| **TITLE** | **Performance of Various Computational Intelligence Methods in IDS: An Analytical Perspective** |
|---|---|
| **AUTHOR DETAILS** | Ch. Raviksihore, P. Sankara Rao, K. Eswara Rao |
| **JOURNAL** | INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH |

| ABSTRACT | An Intrusion is an unauthorized access to the network and retrieves the secret and confidential information and availability on the computer and network resources. Various solutions are available to overcome this type of access and to identify intrusions; one of the methods is Intrusion detection system. An Intrusion Detection System is efficient whenever its accuracy and detection rate is very high as well as false alarm rate is very less percentage. This paper focuses on apply various methods of classification on data set and calculating performance and identifies the accuracy rate and false alarm rate. We should understand that a single efficient algorithm may not be suitable for all individual attacks. In connection to these results, the authors of this paper focused on the various classifications of algorithms that will be performed well based on kind of attack. Keywords: KDD Cup, IDS, DoS, R2L, Probe, U2R, Weka, Computational Methods. |
|---|---|

| TITLE | **Intelligent Liver Disease Prediction(ILDP) System Using Machine Learning Models** |
|---|---|
| AUTHOR DETAILS | **T. PANDURANGA VITAL** |
| JOURNAL | Intelligent Computing in Control and Communication |
| ABSTRACT | Liver disease (LD) is a common disease in the world. The functionality of the liver is very crucial in the human body where it impacts much physical functionality like the manufacture of protein, Metabolism of iron and sugar, and blood clotting. In the present decade, the research on prediction and prevention of LD with Data Mining and artificial intelligence concepts is very important. For this, artificial inelegancy concepts play a vital role. Many researchers have to utilize machine learning (ML) models for predictions of diseases. In this paper, we present the empirical statistical analysis to prevent the LD and apply efficient ML models for predictions of liver diseases in |

early with low cost. The data set is collected from hospital and reputed clinical centers of Andhra Pradesh, India during 2018-2020. The data set contains personal and clinical information. We apply reputed 5 ML models that are KNN, SVM, RF, Naïve Bayes, and AdaBoost. As per performance analysis, the KNN and AdaBoost models perform highly than other experimental models with accuracy 1 (100%) for predicting LDs. The remaining also performs well, where their accuracy values are above 0.86 (86%).

| TITLE | **Student Classification Based on Cognitive Abilities and Predicting Learning Performances Using Machine Learning Models** |
|---|---|
| AUTHOR DETAILS | Vital, T. PanduRanga; Sangeeta, K.; Kumar, Kalyana Kiran |
| JOURNAL | International Journal of Computing and Digital Systems,UOB |
| ABSTRACT | Education is the vital parameter of the country for development in divergent areas like cultivation, economic, political, health, and so on. Any educational Institute's (universities, colleges, schools) main goal is to increase the student's learning capabilities and their skills for their full contribution towards society. In these days, "student's learning process and skill development" research topic requires much-needed attention for the betterment of the society. The student's performance depends on his/her learning ability and is influenced by many factors. In this paper, we analyze the different categories of student's leanings that are very fast, fast, moderate, and slow. For this, we conducted the training and tests and use the features likeability, knowledge level, reasoning, and core subject abilities for the 313 engineering students in AITAM, Tekkali, affiliated to JNTUK, India from 2017 to 2019. We gathered information about the personal, |

academic, cognitive level, and demographic data of students. In this experiment, we are conducting statistical analysis as well as classification of students into 4 types of learners and applying the different Machine Learning (ML) techniques and choose the best ML algorithm for predicting students learning rates. This leads to conducting remedial classes with new teaching methods for moderate and slow learning students. The proposed paper accommodates the individual differences of the learners in terms of knowledge level, learning preferences, cognitive abilities, etc. For this, we apply 5 ML algorithms that are Naive Bayes, Classification Trees (CTs), k-NN, C4.5, and SVM. As per ML analysis, the k-Nearest Neighborhood (k-NN) algorithm is more efficient than other algorithms where the accuracy and prediction values are nearer to 100%.

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