

**PAPER ID: AI52**

**Identification of Potential Cyberbullying Tweets using Hybrid Approach in Sentiment Analysis**

*Akankshi Mody<sup>1</sup>, Reeya Pimple<sup>2</sup>, Shreni Shah<sup>3</sup>, Dr. (Prof.) Narendra Shekokar<sup>4</sup>*

*1,2,3, Computer Department, D. J. Sanghvi College of Engineering Mumbai.*

*4 HoD, Computer Department, D. J. Sanghvi College of Engineering Mumbai*

*E-mail:1 akankshimody@gmail.com, 2reeya26@gmail.com, 3shrenishah96@gmail.com,*

*4Narendra.shekokar@djsce.ac.in*

As the Internet is increasingly used by individuals to express their opinions, cyberbullying is becoming predominant. Research has shown that cyberbullying results into serious consequences. The aim of this study is to implement an automated cyberbullying detection method that identifies cyberbullying in Tweets. We propose a cyberbullying detection technique that uses a hybrid approach of analyzing tweets. We first segregate the textual content of the tweet from the emoticons and then perform sentiment analysis on both these parts to identify the emotion and intent of the tweet. The text sentiment analysis involves a lexicon based approach using SentiWordNet and a machine learning approach which reinforces the result obtained from the SentiWordNet. The emoticon sentiment analysis involves a lexicon based approach. We assign an overall polarity to each Tweet which will classify it as a negative or positive tweet.

**PAPER ID: AI76**

**Simulation of Self-Driving Car in a Simulated Environment**

*Atharva Kunte<sup>1</sup>, Avasyu Bhatia<sup>2</sup>, Ziyad Dhuka<sup>3</sup>*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1askunte13@gmail.com, 2avasyubhatia@gmail.com, 3ziyaddhuka7@gmail.com*

Our system is an implementation of driverless cars in a simulated environment such as a car driving simulator. The chief reason a simulated environment was chosen over real world is to mitigate the risk to human life. Also, a simulated environment would reduce the material losses as well as the overall cost of the implementation process. Once the system has attained a high proficiency in the simulated environment, the system can be migrated and perfected for the real world with some modifications. The software will take the first person view of the car and feed the image to our system. We train our system to map raw pixels from a single front-facing camera directly to steering commands in our simulation.

**PAPER ID: AI30**

**Design and Implementation of Neuromuscular**

**Stimulation to Bypass Nerves System**

*Amit Katariya<sup>1</sup>, Shantanu Madiwale<sup>2</sup>, Meet Mehta<sup>3</sup>*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 2shantanumadiwale@gmail.com*

Paralyzed person or the person with physical disorders won't be able to move their body parts viz. hand or arm because of abnormal behavior of spinal cord or its injuries. In such cases, the traditional solution is to use neuroprosthetic arm replacing paralyzed body part. This kind of surgery basically involves an artificial arm or robotic arm which is controlled by brain which is expensive also. This proposed research work will avoid the need of replacing the human body part. Instead of using prosthetic arm, paralyzed person can use proposed nervous bypass system which will create an external bridge to control paralyzed hand without any surgery. This interaction through machine will make use of embedded devices to provide the solution to surgery and this interaction can be happen by another human to human like normal person can also control hand of

Paralyzed person, this can be happening wirelessly also.

#### **PAPER ID: AI12**

##### **A Self-Driving Model for Low Cost Implementation**

*Yash Trivedi<sup>1</sup>, Prashil Negandhi<sup>2</sup>*

*1,2, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 2prashilcaesar@gmail.com*

The key motivating factor for the underlying research work is to tackle the autonomous driving problem. The proposed research work attempts to design a model to effectively bridge the gap between manual and autonomous cars. It uses computer vision and machine learning to identify obstacles like other vehicles and pedestrians, and respond correctly to traffic-signals and traffic-signs. For training the self-driving model, different types of neural networks will be tested. The authors will attempt to find if a low cost autonomous driving vehicle can be developed using this approach. This would be very advantageous to quickly and conveniently introduce autonomous vehicles in any area.

#### **PAPER ID: AI27**

##### **Smart Meter Data Compression and Pattern Extraction**

*Ankit Shah<sup>1</sup>, Shweta Sunderkrishnan<sup>2</sup>, Dhruvil Dhutia<sup>3</sup>, Prof. Aruna Gawade<sup>4</sup>*

*1,2,3,4 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1ank6735@gmail.com, 2shwetaskrishnan@gmail.com, 3Dhrumil2496@gmail.com, 4aruna.gawade@djsce.ac.in*

Smart meters are technologically advanced IoT devices that record real-time consumption of electric energy and communicate that information, at least daily, back to the utility for monitoring and billing. On an average, the readings are taken every 15 minutes, thus the storage of this humungous yet valuable dataset has to be done at a reduced cost along with effective extraction of useful information. Electricity theft is one more issue that needs to be solved. Methods for stealing electricity can include tapping energy directly from an overhead distribution feeder, tampering meters. Thus with the advent of machine learning technologies, patterns in real-time energy consumption data can be analyzed to detect illegal consumers. By applying supervised learning techniques like SVM on customer consumption data, customers can be classified into illegal and genuine. Moreover, by taking into account various parameters like deviation in electricity consumption, season, date, time and ID of customers a more less accurate prediction can be made regarding electricity theft. Our paper aims to provide a solution for high storage cost issues by utilizing optimum compression algorithm like KSVD and sparse approximation algorithm OMP. Our paper also proposes use of machine learning algorithms to detect electricity meter tampering. Patterns from data will be extracted by applying classification techniques on customer energy consumption data to classify genuine and illegal customers.

**PAPER ID: HCI09**

**Oculus Vision for Blind**

*Dennis Jayesh Mistry<sup>1</sup>, Varun Vasudev Mukherjee<sup>2</sup>, Nayan Thakor Panchal<sup>3</sup>, Prof. Aruna U. Gawde<sup>4</sup>*

*1,2,3,4 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering Mumbai, Maharashtra 400056*

*E-mail: 1mistrydennis@gmail.com, 2varunmukherjee19@gmail.com, 3nayanpanchal22@gmail.com, 4arunagawade@djsce.ac.in*

Oculus enables the user without vision to enable self-navigation without the requirement of the third person. The fundamental principle used is the concept of object detection by continuous capture of image by the Web-Camera. When there is scarcity of light the ultrasonic sensor will alert the person in case if they get too close to the obstacle. This paper demonstrates the basic configuration of the hardware units which can lead towards detecting the obstacles in the way and notifying the user about it so that necessary action can be taken forward to avoid the obstacle. The output is in the form of speech. The hardware used for implementing vision is by using the Raspberry pi 3 and a single Web-camera unit with ultrasonic sensor. The entire set up is mounted on a hat. In order to achieve this we make use of Open CV which is being implemented in raspbian OS. The aim is to enable low cost solution to the visually impaired and also enable them to move freely.

**PAPER ID: NS16**

## **Lightweight Authentication and Encryption Mechanism in Routing Protocol for Low Power and Lossy Networks**

*Akshay Shah 1, Nishit Sakariya 2, Dishith Poojary 3*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

Newer concepts like Wireless Sensor Networks (WSN), Internet of Things (IoT), 6LoWPAN (IPv6 over Low-Power Wireless Personal Area Networks) etc are emerging. So, protocols, techniques and concepts that have been developed for the traditional computational devices do not essentially apply to the newer low power, less capable devices which are an integral part of the Internet of Things paradigm. So newer protocols need to be developed and [1] has drafted in specifications for the routing protocol for Low Power and Lossy Networks. LLN routers typically operate with constraints on processing power, memory, and energy (battery power). Their interconnects are characterized by high loss rates, low data rates, and instability. We aim to propose an authentication and encryption protocol for these Low Power and Lossy Networks (LLN). We have chosen PRESENT as the encryption algorithm and SQUASH as the Authentication Algorithm.

**PAPER ID: DM22**

## **Classifying Imbalanced Data Streams in the Presence of Concept Drift**

*Chandrasekhar Raman 1, Pratik Bhambhani2, Aqsa Bhimdiwala 3*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1rchandu9663@gmail.com, 2pratik110196@gmail.com, 3aqsa.2496@gmail.com,*

Classification is one of the most widely studied problems in the data mining and machine learning communities. Applications involving streaming data are ubiquitous. Typical examples include computer network traffic, phone conversations, ATM transactions, and soon. In data streams, the properties of the dataset or the output variable tend to drift over time due to changes in the environment and hence it becomes difficult to classify data in a non-stationary environment. Therefore, we propose a solution for classifying data in a non-stationary environment (data streams) where we have an imbalanced dataset and the underlying concept that projects the attributes to the class labels is changing continuously viz concept drift. The first layer is used to check whether the incoming data stream has class imbalanced tuples. This information is passed on to the second layer which is tasked with detecting concept drift in the stream. The procedure used for detection depends on whether imbalance was observed in the previous layer. The knowledge generated from the second layer is passed onto the endmost stage for the final level of computation. Here appropriate changes are made in the classification algorithm such that the machine learning algorithm is not adversely affected by the drift.

**PAPER ID: AI60****Multiclass Classification of Imbalanced DataStream**

*Pratik Parekh<sup>1</sup>, Medha Shah<sup>2</sup>, Utsav Shah<sup>3</sup>*

*1,2,3 Computer Department, D. J. Sanghvi College of Engineering Mumbai*

Imbalance data stream classification deals with data streams having very skewed class distributions. Seven vital areas of research in this topic are identified, covering the full spectrum of learning from imbalanced data: classification, regression, clustering, data streams, big data analytics and applications. Our preliminary focus out of these seven areas is on the continuous and skewed data stream. The stream processing frameworks that are designed to process the streaming data arrives in real time. Multi-class imbalanced classification is not as well-developed as its binary counterpart. Here we deal with a more complicated situation, as the relations among the classes are no longer obvious. A class may be a majority one when it is compared to some other classes, but a minority or well-balanced for the rest of them. When dealing with multi-class imbalanced data we may easily lose performance on one class while trying to gain it on another. A deeper insight into the nature of the class imbalance problem is needed, as one should know in what domains does class imbalance most hinder the performance of standard multi-class classifiers when designing a method tailored for this problem. In this project, a framework for modelling and classifying the streaming data when the classes of the data samples are imbalanced were proposed. Modelling methods implemented include techniques such as data pre-processing, machine learning algorithms and model evaluation. The combined challenges posed by multi-class imbalance and online learning, are resolved with a more effective and adaptive solution for the classification of this data.

**PAPER ID: DM14****FOREX**

*Nimit Parekh<sup>1</sup>, Manav Shah<sup>2</sup>, Varun Shah<sup>3</sup>*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

The Foreign Exchange Market is the most advanced and liquid Financial Market. In a dynamic environment where variables are constantly changing, there is definitely the tendency of human's error as well as human psychology affecting decision making of micro investors and resulting in losses. Our project thus steps in as an intelligent financial tool, to maximize returns and to minimize the leveraged risks taken on by investors. The financial model tool takes multiple minute to minute currency pair data as an input. With the help of multiple dynamic technical indicator variables, the tool easily identifies the trend along with the strength as well as the possibility of the trend. This dynamic data is then trained and tested on the system with the help of models i.e. Multiple Regression Model & The Support Vector Machine Model, they work in conjunction as classifieds of supervised learning to maximize the probability of a positive rate of return. This enables the investors and traders to make decision in an objective manner and thus serves as a precautionary and essential tool to maximize gains and minimize risk.

**PAPER ID: AI32**

**Heart Rate Evaluation and Risk calculation**

*Chintan Devda<sup>1</sup>, Jaydeep Gami<sup>2</sup>, Meet K Mehta<sup>3</sup>*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

Artificial Intelligence techniques have been successfully employed in disease diagnosis, disease risk evaluation, patient monitoring, robotic handling of surgeries and predicting effect of new medicines. This paper proposes and evaluates Genetic Neuro Fuzzy System for diagnosing Hypertension risk. Risk factors viz. Systolic and Diastolic Blood Pressure, Body Mass Index, Heart Rate, Cholesterol, Glucose, Blood Urea, Creatinine and Uric Acid have been taken as inputs to the system. The system classifies the input samples into Low, Medium and High risk samples. The fuzzy logic qualitative approach is integrated with genetic algorithm to diagnose the presence of the disease.

**PAPER ID: HCI14**

**Smart Trainer: A Virtual Guide for Personal Training in Exercise**

*Twinkle Dhanak<sup>1</sup>, Saheb Singh<sup>2</sup>, Niyati Maheshwari<sup>3</sup>*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering Mumbai, India*

*E-mail: 1twinkledhanak@gmail.com*

The current century has given rise to advancements in technology which has made the lifestyle of a number of people in the society sedentary. But with the availability of a number of video tutorials for fitness training and exercises available online, we can make our lifestyle healthier. To reap the benefits of these resources, a guide is needed to examine if these exercises are performed well. Also, not doing the exercises properly can have numerous side-effects on the human body whose results will be visible in the long run. A personal trainer is a person who does

this job but not everyone can afford to have one. This paper suggests of a novel solution to the same problem using image processing and machine learning. The approach understanding the level of expertise of a user and the video of the user exercising suggest the necessary changes to the user in their posture. This will prevent side effects of attaining incorrect postures and at the same time maps and increases user benefits from the same. It has numerous applications in physiotherapy, self-training, and maintaining body-weight and a healthy lifestyle.

**PAPER ID: AI59**

**Prediction of Personality based on Handwriting**

*Sharanya Ojha<sup>1</sup>, Abhishek Shah<sup>2</sup>, Sagar Shrinagarpure<sup>3</sup>*

*1,2,3, Student Department of Engineering,*

*D. J. Sanghvi College of Engineering Mumbai*

Organizations recruiting people are constantly on the lookout for people with specific qualities and traits. We felt the need for a method whereby organizations can properly analyze people based on their personality type. Handwriting conveys important information about the physical, mental and emotional state of the writer during writing and also about his overall behavior or personality traits. In this project, we develop a system which can analyze such a handwritten sample and predict the personality of a person among the 16 Myers Briggs personality types. With the advancement in fields such as Machine Learning and Image Processing, the analysis of handwriting can be automated completely. This paper proposes to create a classifier using SVM after processing a scanned sheet of sample handwriting to reveal the personality of a person.

**PAPER ID: AI24**

### **Automated Essay Generation**

*Dhruvil Mehta<sup>1</sup>, Rajat Bhagat<sup>2</sup>, Aditya Dubey<sup>3</sup>*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

Student's ability to write essays on various different topics shows their command

over the language. Students having knowledge about their domain cannot succeed as they are unable to express their ideas. To address this problem, we propose a system to generate factual essays. The applications of essay generation are endless. Our proposed system can be seen as a series of 5 distinct steps: Source Selection, Extractive Summarization, Knowledge Representation, Clustering and Ranking, and Natural Language Generation. We have considered Wikipedia as our input source. Information is extracted and represented in the form of different clusters. Abstractive summarization techniques are used to generate a unique set of sentences for the essay. The proposed system currently aims to generate factual essays pertaining to "countries" dataset. The system's applications are far reaching, from educational, to corporate. It can be used to generate factual essays for the purpose of aiding students. It reduces the amount of information to be parsed, hence simplifying the task of processing said information for a human.

**PAPER ID: AI80**

### **Context Based Question Answering System**

*Avais Pagarkar<sup>1</sup>, Rudresh Panchal<sup>2</sup>, Swapneel Mehta<sup>3</sup>, Lakshmi Kurup<sup>4</sup>*

*1,2,3, Student, 4 Assistant Prof, Department of Computer Engineering,*

*D. J. Sanghvi College of Engineering Mumbai*

Processing and understanding very large documents has always been a problem for humans. This is especially difficult in case of documents from highly technical domains like medicine and law. An interface which responds in natural language to a Human's queries on any given document is the ideal solution. Such Question Answering systems, given the Document as context, parse it, understand it and answer questions based on the same. Our system consists of two major modules, the Document Retrieval and the Machine Comprehension system. For the Document extraction, we implemented a custom TF-IDF with intermediate weight hence processing documents faster. We use Deep Learning based approaches, namely a combination of Dynamic Co-Attention Networks and Bi-Directional Attention Flow models for the machine comprehension.

**PAPER ID: AI14**

### **Automated Fake News Detection**

*Shreya More 1, Hrishikesh Telang2, Yatri Modi3*

*1,2,3, Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1shreya.s.more@gmail.com*

The discrimination between truth and falsehood has received significant attention from various fields such as philosophy, psychology and sociology. Fake news has been at the centre of the debate raging about the outcome of the 2016 US Presidential Election and the rise of social media has made it easier to blur the line between what is and what isn't a reliable source of information. Millions of people use social media frequently, making the spread of fake news a pressing issue.

Recent advances in NLP made us think about approaching this issue from a data-driven perspective. We propose to investigate whether automatic computational approaches can be used to detect falsehoods in written text. Specifically whether certain features can be collected from reliable and non-reliable sources and whether they can be classified as such using existing models. We will also check for specific features of deceptive text. Conroy, Rubin and Chen (2015) mention several classification methods but note that simple n-grams and Parts-of-speech tagging

do not take into consideration the context of the text unless used with other complex methodologies such as Probabilistic Context Free Grammars (PCFGs). We propose to implement the following commonly used classification models: 1) Recurrent Neural Network 2) Long Short-Term Memory 3) Random Forest Classifier 4) Logistic Regression The project analyses and compare their performance to determine the feasibility and success rate of an automatic fake

news detection system based on the three techniques.

**PAPER ID: AI31**

## **Human Understanding Analyzer (Machine Learning)**

*Manogya Prasad<sup>1</sup>, Rizwan Japanwala<sup>2</sup>, Harshil Vora<sup>3</sup>, Prof. Mrs. Lakshmi Kurup<sup>4</sup>*

*1,2,3,4 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1manogyaprasad@gmail.com, 2Rizwanjapanwala@gmail.com, 3harshil.vora8@gmail.com, 4lakshmi.kurup@djsce.ac.in*

The aim of the project is to create an AI based application that can analyse emotions in frames from a live video feed of a person learning and determine the relative understanding level of the person during and after the learning process. This is achieved by using a Convolutional Neural Network trained by the FER-2013 Dataset "Emotions In The Wild" for emotion recognition and an algorithm to determine relative level of understanding using that information. Output will finally show the relative variation in the person's level of understanding over time. The patterns in the variation can then be easily interpreted to determine whether the person is understanding and at what point of time during the learning process did it drop or increase. A web based tool for analysis of understanding level of the person is used at the end of session.

## **PAPER ID: DM03**

### **Lifestyle based Disease Prediction System**

*Harsh Jain 1, Jay Jain<sup>2</sup>, Praful Kothari<sup>3</sup>, Prof. (Mrs.) Chetashri Bhadane<sup>4</sup>*

*1,2,3,4, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 4chetashri.bhadane@djsce.ac.in*

Data Mining is has become one of the most important computing domains in today's information age, from processing large amounts of data to finding relevant patterns. In present period, these advanced techniques are the epitome of establishing relevancy and context to elaborately describe clinical/medical and lifestyle data. Disease Prediction plays an important role in data mining. In order to analyze and generate relationships amongst various attributes, extensive Data Mining techniques and application specific algorithms are developed. The attributes which are used as input for our proposed model are age, gender, blood sugar, obesity level, cholesterol, level of smoking, exercise level, stress level and many more. These data are summed from different sources. Then it is assembled, integrated and cleaned up. After this step it is being able to predict the disease the user might possess. This will help individuals to made decision regarding their health and whether the lifestyle which they are adapted to is positive or not.

**PAPER ID: AI02**

### **Detecting Objectionable Content in Video Clips for Children**

*Rushabh Dharia<sup>1</sup>, Chirag Jain<sup>2</sup>, Niki Jain<sup>3</sup>*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1rushabh.dharia@gmail.com, 2cjain678@gmail.com, 3nikkijain264@gmail.com*

This paper describes our project “Detecting Objectionable Content in Video Clips for Children” which uses Deep Learning to find out if a video file is suitable for children to watch. Exposure of objectionable content like nudity, violence and drug abuse can affect children. Our software can detect such content beforehand by analyzing the frames in the video. Deep learning has been demonstrated to achieve excellent results for image classification and object detection. However, the impact of deep learning on video analysis has been limited due to complexity of video data and lack of annotations. In this paper, we propose a recurrent convolutional network called RCNN for action detection in videos. The proposed architecture is a unified deep network that is able to recognize and localize action based on 3D convolution features.

**PAPER ID: HCI03**

### **3D Visualization and Colorization of Brain MR Images**

*Dhruvesh Mehta<sup>1</sup>, Gitika Daswani<sup>2</sup>*

*1,2, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1mehta.dhruvesh@gmail.com, 2gitika.daswani@gmail.com*

There has been swift development of non-invasive brain imaging technologies which have led to various new beginnings in the analysis and study of brain anatomy and functioning. Magnetic resonance imaging (MRI) is largely responsible for the progress made so far in accessing brain injury and looking into its anatomy. Large amount of high quality data is available due to development in brain MR imaging. The examination of these huge and complex MRI datasets has turned into a tedious and complex errand for clinicians, who need to physically separate imperative data. This manual examination is frequently tedious and inclined to blunders because of different inter/intra-operator variability studies. Through this project, we propose

computerized methods to improve disease diagnosis and testing. We intend to segment the grayscale MR images of the brain into distinct regions composed of pixels with the same characteristics based on prior anatomical knowledge of the three primary regions - grey matter, white matter and cerebrospinal fluid; colorize the resulting segments to enhance the perception and

interpretation of the images and further process this data in order to generate a 3D visualization of the brain to facilitate the study of pathological regions for planning a surgery.

**PAPER ID: HCI04**

### **Attention Monitoring System in a Classroom**

*Uma Sreeram 1, Aastha Joshij 2, Nikita Parmar 3*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering Mumbai, India*

*E-mail: 3 nikitadp1701@gmail.com*

Educational institutions today try to impart quality education to its students however there is no efficient method to evaluate how well the lecture topics are grasped to the students. We propose to build an efficient method to assess the students' attention level during the lecture to determine if they have understood the lecture or not. Our proposed system can be broken down into a series of steps: video to image frame generation, face detection, facial landmark detection, hand over face detection, classification and result analysis. By this the most prominent facial expressions and hand gestures are detected and used for classification as Paying Attention or Not Paying Attention. On the basis of this, the teachers can understand the students' attention patterns and make modifications in their teaching methodology accordingly.

**PAPER ID: AI61**

### **Dermatological Disease Classification**

*Sagar Dedhia1, Pratik Jayarao2, Yash Doshi3*

*1,2,3 Department of Computer Engineering*

*D. J. Sanghvi College of Engineering Mumbai*

*E-mail:1 sag.ded@gmail.com,2 jayaraopratik@gmail.com,3 yashdoshi6@gmail.com*

Skin diseases are amongst the most common health issues around the globe. Identification of skin diseases requires a high level of expertise as there are various visual aspects which have to be taken into consideration. In this project we propose an approach that uses IP feature extraction along with deep neural networks to classify various kinds of dermatological skin diseases. We have performed feature extraction using different types of image processing techniques. With help of artificial neural network and convolutional neural network we have classified 6 different skin abnormalities.

**PAPER ID: AI68**

### **Game Automation Using Reinforcement Learning**

*Bhargav Mehta<sup>1</sup>, Rohan Madhani<sup>2</sup>, Viral Lakhani<sup>3</sup>*

*1,2,3 Student Department of Computer Engineering,*

*D. J. Sanghvi College of Engineering Mumbai*

*E-mail: 1 mehtabhargavr@gmail.com , 2rohanmadhani123@gmail.com, 3 viral2100@gmail.com*

The project aims to replicate a system that combines deep learning methods and reinforcement learning in order to create a system that is able to learn how to play games on its own. A model free reinforcement methodology named 'Q-Learning' is used. Therefore, the core algorithm of Deep Reinforcement Learning used is 'DQN'. DQN is combined with Reinforcement Learning (RL)—a machine learning framework that prescribes how agents should act in an environment in order to maximize future cumulative reward (e.g., a game score). Foremost among these was a neurobiological inspired mechanism, termed 'experience replay', whereby during the learning phase DQN was trained on samples drawn from a pool of stored episodes. The agent is not given information about game - it must learn these representations and directly use the input and score to develop an optimal strategy. The system has access only to the visual information i.e. the screen of the game and the scores. Based on these two inputs the system learns to understand which moves are good and which are bad depending on the situation on the screen.

**PAPER ID: AI78**

### **Safe Driving System**

*Abhishek Shukla<sup>1</sup>, Yeshwant Ranka<sup>2</sup>, Bhavya Shah<sup>3</sup>, Prof.Mrs. Sindhu Nair<sup>4</sup>*

*1,2,3, Student, 4 Assistant Prof. Department of Computer Engineering,*

*D. J. Sanghvi College of Engineering Mumbai*

*E-mail: - 1 shukla1996abhishek@gmail.com, 2 yeshwant. ranka1010@gmail.com, 3bhavyashah9@gmail.com*

Accident prediction is one of the most critical aspects of road safety, whereby an accident can be predicted before it actually occurs and precautionary measures taken to avoid it. For this purpose, accident prediction models are required in road safety analysis. Artificial intelligence (AI) is used in many real world applications, especially where outcomes and data are not same all the time and are influenced by occurrence of random changes. This paper presents a model for Safe driving system. AI techniques are surveyed for the detection of unsafe driving style and crash prediction. A number of statistics and data set are used to predict the accidents by using different vehicle and driving features are also covered in this paper. The parameters used are in terms of datasets and prediction performance. We also provide a list of datasets and simulators available for the scientific community to conduct research in the subject domain.

**PAPER ID: AI65**

### **Medical Intelligent Record Assistant**

*Suhail Barot<sup>1</sup>, Dhanashree Jatar<sup>2</sup>*

*1,2 Department of Computer Engineering,*

*D. J. Sanghvi College of Engineering Mumbai*

In the healthcare industry, natural language processing has many potential applications. NLP can enhance the completeness and accuracy of electronic health records by translating free text into standardized data. It may be able to make documentation requirements easier by allowing providers to dictate their notes, or generate tailored educational materials for patients ready for discharge. However, one problem strikes us as more pressing than the rest. Today, hospitals are, sadly, one of the busiest places to work. With the burden of treating 50+ patients every day, doctors are unable to properly document each case. Therefore, there is a lot of data loss. Many a time, this data can be the difference between life and death for a patient. We envision a tool that listens to, understands and organizes diagnosis related conversations between doctors and patients. It also uses a specialized semantic network known as a "Knowledge Graph" to build contextual relationships between people, diseases, and symptoms. We call her the Medical Intelligent Record Assistant, or just MIRA. MIRA processes speech, converts it to text, and extracts contextual information from the dialogue. This includes symptoms, diseases, medicines and other medical jargon that is essential to keep track of the patient's progress. It uses this information to build a knowledge graph, which allows doctors to use it as a Decision Support System as well. An electronic health record (EHR), or electronic medical record (EMR), refers to the systematized collection of patient and population electronically-stored health information in a digital format. The raw information collected and processed by MIRA will be stored in these EHRs (along with the knowledge graph), which increases accessibility and portability. The graph based storage predicts possible diseases, related symptoms and other vital information to assist the doctor.

**PAPER ID: AI34**

### **Calamity Evacuation using Social Network**

*Parth Vora<sup>1</sup>, Mili Desai<sup>2</sup>, Aditya Vallat<sup>3</sup>*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

Calamities happen from time to time. Disaster Management Teams' focus is to send rescue and relief teams on site at the earliest so that the affected persons can be evacuated and provide the required care. Responding to a calamity / disaster event quickly and efficiently can mean a matter of life and death for some affected persons. In this project, we plan to build a system that would provide emergency personnel the ability to collect information in real time about disaster events, track the resources (rescue teams and helpers) and manage them. It allows the head responders, rescue teams and helpers to manage multiple incidents simultaneously. With the help of apps built for an android device, the head responder will be able to quickly and most optimally assign rescue teams to different locations and rescue teams will get information on the priority and order in which they need to rescue the affected persons. This project also describes the implementations of

commander app, responder app and victim app and the algorithms used to come up with an effective and optimum evacuation strategy. We also have implemented algorithms to optimize the total time taken to evacuate a calamity affected area. Along with it the commander can review the entire process once it is done and then provide feedback in the application itself. This will help in the future use of this application.

**PAPER ID: AI13**

### **Movie Genre Classification using Poster**

*Akshat Barbhaya<sup>1</sup>, Karan Gada<sup>2</sup>, Mahadevan Kounder<sup>3</sup>*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

Judging a book by its cover is an old adage that warns against evaluating the merit of something based strictly on its outward appearances. However, taken literally, we set out to see if we can in fact judge a book by its cover, more specifically judge a movie by its poster.

This paper presents a method for movie genre categorization of movie poster. Our approach decomposes each poster into feature and its descriptor and cluster this descriptor into Bag-of-Visual-Words (BOVW). We approach the genre classification task by mapping BOVW into movie genres like action, romance, comedy, drama or horror movies using learning algorithm.

On one hand we will explore various algorithms like SIFT, SURF etc. for feature extraction and cluster them using K-Means algorithm to obtain BOVW from the object recognition of poster of the movie and on the other hand we will test various learning algorithm like Neural Network(NN), SVM etc. to obtain movie genre

**PAPER ID: AI19**

### **Nutritional Estimation from Fast Food Images and Alternative Recipe Suggestion for Diabetic Patients**

*Kaiz Merchant<sup>1</sup>, Yash Pande<sup>2</sup>, Ashutosh Singh<sup>3</sup>, Prof.Mr. Pankaj Sonawane<sup>4</sup>*

*1,2,3,4 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1merchant.kaiz@gmail.com, 2yash3096a@gmail.com, 3ashutoshsingh2250@gmail.com, 4pankaj.sonawane@djsce.ac.in*

In recent years, obesity and health of diabetic patients have become major issues. To address the issue of obesity, it is very important for a person to know the amount of calories he or she is consuming, while for addressing the issues related to health of diabetic patients, sugar and carbohydrate levels are important. We propose a novel deep learning Convolutional Neural Network

based system that can effectively run on smartphone devices, that not only provides the appropriate nutritional estimates but also suggests alternate food recipes for diabetic patients. Our system pre-processes the image as a first step in the process and then food recognition is carried out. After this, calorie, sugar and carbohydrate content is shown to the user and alternate healthy options for diabetic patients are presented. Our deep learning framework attained an accuracy of 96 percent for the 5 food categories we trained it for. By user experiments, effectiveness of the proposed system was confirmed. The future scope includes expanding to more food categories and optimising the application for better results.

#### **PAPER ID: AI67**

##### **Automated Evaluation of Subject Answers using Text Processing and Sentence Similarity**

*Aditya Maniar<sup>1</sup>, Devansh Gada<sup>2</sup>, Chantelle D'Silva<sup>3</sup>*

*1,2,3 Student Department of Computer Engineering*

*D. J. Sanghvi College of Engineering Mumbai*

Trends of online objective examination are already available but many courses require assessment in traditional way so that the subject understanding of the candidate can be evaluated which requires subjective assessment i.e. descriptive based examination. Thus in our project we are focusing on the inference process required for development of such type of systems. Our system will be able to assess one/many words and one (few) sentence(s) based answer with more than average efficiency. While answering single sentence answers paraphrasing is consider for assessing the variations occurring due to the use of vocabulary

#### **PAPER ID: AI33**

##### **Text to Image Generation using Deep Learning**

*Sudhir Bagul<sup>1</sup>, Kumpal Dhruv<sup>2</sup>, Nikhil Kamat<sup>3</sup>, Pooja Kulkarni<sup>4</sup>*

*1,2,3,4 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

This paper reviews the methods to generate images for a given text caption. The process works by converting the given text caption sequences into text embeddings, using skip-thought vectors or by using char-CNN-RNN text encoders conditioned on the images and text captions of the used dataset. The text embeddings are then passed to a generative convolutional neural network which outputs the generated images, which are similar but not included in the dataset used. This generative network is trained by the process of adversarial training, implemented in Generative Adversarial Networks.

**PAPER ID: HCI17**

### **An Educational Augmented Reality App to Enhance Learning Experience**

*Vineet Malhotra 1, Dhruvil Desai2, Hasan Banswarawala3*

*1,2,3 Department of Computer Engineering ,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1vineetmalhotra15@gmail.com, 2 dhruvildesai04@gmail.com, 3 hasandbz@gmail.com*

Augmented Reality is changing education in a dramatic way and it brings a new dimension to teaching and learning practices through visualization of the real world in an interactive environment. The aim of this research is focused at developing a mobile based Augmented Reality application using Vuforia and Unity which will be helpful and valuable for students in reinforcing their learning experience.

**PAPER ID: AI29**

### **Intelligent Alzheimer's Detector using Deep Learning**

*Mukul Puranik1, Himanshu Shah2, Keval Shah3*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

Researchers of the era are constantly striving to achieve accurate, precise algorithms incorporated in highly affordable models, trying to assist the medical practitioners in solving complex medical problems (Alzheimer's). Deep Learning is state-of-the-art learning algorithm in classification and exceptionally efficacious in extracting high level features from multi-dimensional data. In this system we use Convolutional Neural Network particularly for classification of fMRI clinical data on stages of Alzheimer's disease brain from Diseased (AD), EMCI to those who are normal, having healthy brains. Usage of MRI data has already been done [1] for binary classification. We aim to generalize the classifier into categorizing the images into three different distinct classes. The deep learning pipeline involved critical steps of correctly preprocessing 4D fMRI images i.e 3D images varying with time. The preprocessing steps involved, proved to be critical in having distinct 2D image slices of Normal, EMCI and AD for better accuracy in understanding the most discriminative features in the fMRI brain scans. Transfer Learning is the concept involved wherein we utilize pretrained complex deep models for classification of images. Advantage of this learning over constructing a new convolutional network is that the knowledge gained during training of ImageNet Dataset fastens the learning process in addition to increased accuracy. We have adopted Inception Resnet V2 model and hope to achieve a competitive accuracy. The aim of the project is to create an Alzheimer's Detector ousting the accuracy of modern radiologists so as to reduce the effort and money of consulting a Radiologist.

**PAPER ID: NS01**

### **Malware Generation using Taint Graph**

*Ayushya Mishra 1, Mehul Sanghavi 2, Pawan Shah 3, Aman Gandhi 4*

*1,2,3, Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

*E-mail: 1ayushya95@gmail.com, 2 mehulsanghavi@ymail.com, 3shahpawan149@gmail.com, 4amang141294@gmail.com*

Cyber security and information security acts as nucleus of any computer application infrastructure. Cyber-space is constantly humbled owing to the vast array of vulnerability that exist in any application residing in the system. Malware is an umbrella term for a lot of viruses that are in the wild. Most attacks are widely targeted on capturing user's (victim's) sensitive information and more or less can be detected by the available security measures like Antivirus, Intrusion Detection Systems, etc. But when a sophisticated malware attack happens which bypasses all the static signature based malware detection mentioned above it seeks a novella and dynamic (read flexible) approach to be able to tackle with those attacks. These attacks may have viruses which are polymorphic in nature or are zero-day attacks or they are simply multi-step attacks. We propose a system capable of dynamically detecting malware that are key logger in nature by generating signatures through taint graphs. Our system will log events in the guest/victim system created by a running process and construct a log file from it which will have comprehensive information of all action performed by that process in the system which is later used to generate a taint graph or policy. This mentioned signature is intended to be flexible in nature to also take in effect any minor or otherwise change in the attack since it relies on detecting violation with the policies.

**PAPER ID: AI51**

### **Audio Recording and Analysis to Detect and React to Anthropogenic Disasters**

*Shalin Parikh1, Raunak Vijan2, Zaid Merchant3, Prof. Mr. Pratik Kanani*

*1,2,3,4 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

The working process of our proposed system is explained as: Once the incident is detected via audio content retrieval, an alarm can be immediately issued to the local police officers and immediate intervention can be performed to contain the event. The fundamental idea is to create a taxonomy to organize unstructured hazard sound data. The hierarchical formation can significantly facilitate browse, search and classification of acoustic patterns. In order to characterize predominant patterns in emergency sounds, unsupervised acoustic feature learning algorithms are employed. The methods can effectively extract effective features that are invariant to background noise. On creation of disaster taxonomy, we introduce probabilistic distance metrics in both Euclidean and Grassmannian spaces to quantize difference between hazard sound categories. A taxonomy can be

subsequently built using well-defined categorical distance measures in agglomerative fashion. At multi-class emergency sound recognition stage, we devise methods to embed hierarchical dependencies in acoustic data in classification algorithm. We intend to implement using a test data set for the training set to classify all categories. Actual implementation can be proven by using a microphone attached to a Raspberry pi for the IoT aspect of our project.

**PAPER ID: DM10**

### **Personalized Travel Sequence Recommendation on Multi-Source Big Social Media**

*Tarun Reddy 1, Jenila Sanghvi2, Deval Vora 3*

*1,2,3 Department of Computer Engineering,*

*Dwarkadas J. Sanghvi College of Engineering, Mumbai, India*

This project is named as “Personalized Travel Sequence Recommendation” as it recommends the travel sequence using travelogues and community contributed photos along with heterogeneous metadata (e.g., tags, geo-location, and date taken) associated with these photos. Our approach is not only personalized to user’s travel interest but also able to recommend a travel sequence rather than individual Points of Interest (POIs) which most existing travel recommendation approaches fail to provide. We use topical package space which includes representative tags, cost distribution, visiting time and visiting season of each topic which is then mined to bridge the gap between user travel preference and travel routes. We utilize two kinds of social media viz. travelogue and community contributed photos. In order to get user topical package model and route topical package model, we map textual descriptions of user and routes to the topical package space. Famous routes are given a rank according to the similarity between user package and route package in order to recommend a personalized point of interest sequence to the logged in user. Then a route is selected from the top ranked routes to further optimize it according to social similar users’ travel records. Representative images with viewpoint and seasonal diversity

of POIs are shown to offer a more comprehensive impression. We assess our recommendation system on the basis of 6 million Flickr images uploaded by ample number of users and approximately 20,000 travelogues covering 850 travel POIs in five famous cities, and show its effectiveness