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on
Data Analytics and Management

An Indo-European Conference

ICDAM-2020

18th June 2020



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Jan Wyzykowski University, Polkowice, Poland and
B.M. Institute of Engineering and Technology, Haryana, India



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Schedule

ICDAM-2020



CONFERENCE SCHEDULE

10:30AM - 01:30PM | SESSION - 01
Machine Learning Techniques
Paper IDs :: 34,114,124,152,156,195,267,339,349,353

10:30AM - 01:30PM | SESSION - 02
Optimization Techniques
Paper IDs :: 151,153,188,197,198,215,225,240,296,298,306,318,352

10:30AM - 01:30PM | SESSION - 03
Data Mining Techniques
Paper IDs :: 6,22,25,122,297,311,316,319,322,327,330,331

10:30AM - 01:30PM | SESSION - 04
Deep Learning Techniques
Paper IDs :: 14,18,20,80,142,185,204,236,262,288,341,342

10:30AM - 01:30PM | SESSION - 05
Internet of Things
Paper IDs :: 88,115,144,170,173,176,203,338

10:30AM - 01:30PM | SESSION - 06
Networks
Paper IDs :: 26,90,91,112,162,184,186,193,194,202,328,350

NOTE: 1. All authors are required to download **ZOOM** app from play store or app store and Joining credentials will be provided by 17th June 2020.

2. 03:00 Hrs. each session, @15 minutes each paper.

Inaugural Ceremony & Keynote Talk

02:00PM - 03:00PM | INAUGURAL SESSION
Welcome speech by Program chair/ Organizing Chair

03:10PM - 03:40PM | KEYNOTE SESSION - 01
Agent Based IoT
Speaker: Giancarlo Fortino, Full Professor of Computer Engineering at the DIMES University of Calabria (Unical), Italy

03:45PM - 04:15PM | KEYNOTE SESSION - 02
Differential Evolution: A Brief Introduction and Relevance to Optimization for Data Mining
Speaker: Dr. Swagatam Das, Indian Statistical Institute, Kolkata

04:20PM - 04:50PM | KEYNOTE SESSION - 03
Writing a Scientific Manuscript
Speaker: Aninda Bose, Senior Editor, Springer

05:00PM - 05:15PM | Closing ICDAM-2020 & Call for Papers ICICC-2021

NOTE: Poland Timings from 7:00AM to 2:30PM
India Timings from 10:30AM to 5:30PM

INTERNATIONAL CONFERENCE ON DATA ANALYTICS & MANAGEMENT
AN INDO-EUROPEAN CONFERENCE

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JUNE 18, 2020

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A FORECASTING BASED DLP APPROACH FOR DATA SECURITY

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Abstract. Sensitive data leakage is the major growing problem being faced by enterprises in this technical era. Data leakage causes severe threats for organization data safety which badly effects the reputation of organizations. Data leakage is the flow of sensitive data/information from any data holder to an unauthorized destination. Data leak prevention (DLP) is set of techniques that try to alleviate the threats which may hinder data security. DLP unveils guilty user responsible for data leakage and ensure that user without appropriate permission can't access sensitive data and also provides protection to sensitive data; if sensitive data is shared accidentally. In this paper, data leakage prevention (DLP) model is used to restrict/grant data access permission to user, based on the forecast of their access to data. This study provide a DLP solution using data statistical analysis to forecast the data access possibilities of any user in future based on the access to data in past. The proposed approach make use of renowned simple piecewise linear function for learning/training to model. The results show that the proposed DLP approach with high level of precision can correctly classify between users even in cases of extreme data access.

Keywords: Data Leakage; Data Leakage Prevention; Forecast; Guilty Agent; Statistical Analysis.

DETECTION OF ANTERIOR CRUCIATE LIGAMENT TEAR USING DEEP LEARNING AND MACHINE LEARNING TECHNIQUES

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Abstract. Magnetic Resonance Images (MRI) are used by surgeons to analyse different tears in the knee part of the body. This technique has demonstrated significant accuracy for the diagnosis of injuries like meniscus tears, ligament injuries, acl tears etc. However, studying these MRI manually is very time consuming and has high chances of wrong prediction. It can take more than thirty minutes to properly examine a knee MRI and come to a result. It is a time intensive process and has high error probability. Therefore, an automated model for examining knee images to predict the tears would cut the time cost and also the human errors. Generally, deep learning models work best with large amounts of dataset. But, there is not much data present out there of knee injuries which can help to train the model properly. For this purpose, we decided to analyse different deep learning and machine learning algorithms to compare and find the most efficient method. These models were applied on Knee MRI dataset for the prediction of Anterior cruciate ligament (ACL) tear from sagittal plane MRI scans which provide scans of totally ruptured, partially injured and healthy knees. After our analysis of various models, it was found that the best results were given by Support Vector Machines (SVM) followed by Convolutional Neural Networks (CNN) on the masked dataset.

Keywords- Anterior cruciate ligament tear, MRI, Algorithm analysis on Knee Injuries, CNN, SVM.

A STUDY ON IMAGE ANALYSIS AND RECOGNITION USING LEARNING METHODS: CNN AS A BEST IMAGE LEARNER

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Abstract. To ensure the correct image recognition is a notable and limelight task which called for efficient measure. Learning algorithms in the area of pattern recognition have attracted attention of researchers owing to their extraordinary, exciting, and astounding performance. To alleviate the analysis, recognition, and detection problems such like speedy operations with powerful computing precision from huge dataset, learning algorithms are showing the paramount and re-markable success. However, to work with images using machine learning still remains an open issue. Therefore, this article intends to perform learning approaches study in detail. The paper emphasized on image recognition using learning models. The study shows the learning techniques subtle comparison and find out the best way to detect the images. Furthermore, the document conducts experiment and the results indicate that convolutional neural network shows the significant performance as a best image analyzer or learner over well-known state-of-art learning approaches. However, the machine learning approaches failed to achieve the required and comparatively better result.

Keywords: Image recognition, handwriting recognition, mnist dataset, cifar 10 dataset, machine learning, deep learning, convolutional neural network.

ANN MODEL FOR FOREST COVER CLASSIFICATION

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Abstract : In order to develop efficient ecosystem management an ANN model has been developed to present a factual way to capture futuristic dynamics on forest cover. The forest cover type Kaggle dataset provided by US Forest Service has been considered for the study. The different activation functions are used to perform varied calculation between the layers of MLP architecture to predict different forest type. The ANN model predicts projection by giving accuracy of 100% with RELU (RELU on internal node and Softmax at output node) in comparison to TanH activation function giving 61.21% of accuracy. The results illustrate the toughness and efficiencies of the ANN representation with the combination of RELU & Softmax. This work offers a consistent means for projecting forest cover and farming yields under provided prospective circumstances, supporting administrative management in consistent land development, management, and protection.

Keywords: Multiple layer perceptron (MLP), rectifier linear unit (RELU), Softmax, TanH, Forest Cover, Artificial Neural Networks (ANN), Activation Function (AF), US Forest Service (USFS), US Geological Survey (USGS), Sustainable Forest Management (SFM).

AN APPROACH TO DETECT SARCASM IN TWEETS

Jyoti Godara* and Rajni Aron

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Abstract : When academic and business ventures are discussed, electronic documents form the crucial part of receiving and transferring information. There is no use of online information if we cannot extract it and use it to cater our ventures. In order to frame up any overview, it is required to find the relevant text with complete omission of unnecessary information while keeping the focus on details and compile them into a document. The sentiment analysis is the approach used to evaluate users' sentiments on websites, forums, comments, feedback as negative, positive or neutral. But, sometimes, people express their negative sentiment in a positive manner. This flips the polarity of the sentence and sentiment analysis performance is affected. Thus, automatic detection of this sarcastic text is an essential aspect of sentiment analysis. Motivation for this paper includes to provide overview of Sentiment Analysis and Sarcasm. Research studies in the area of sentiment analysis and Sarcasm are also discussed. There are multiple existing techniques for automatic detection of Sarcasm, according to the literature studied ensemble learning has performed better than others. In this paper, designing and development of an ensemble classification method is proposed. Base classifiers selected are Decision Tree, Naive Bayes and K-nearest Neighbor. It will thus improve various parametric values for the sarcasm detection.

Keywords : Sentiment Analysis, Sarcasm, Ensemble Classifier, Machine Learning

A TRUST-BASED APPROACH TO EXTRACT SOCIAL RELATIONSHIPS FOR RECOMMENDATION

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Abstract : Recommender systems are gaining momentum with the increasing set of user choices in recent years. Also, growing proliferation of social networking sites are using these systems to accelerate their usage. This paper presents an approach that uses trusted social relations for recommendation in social networks. Matrix factorization approach is used to factorize the user-item rating matrix. Both rating matrix and trusted relations play a crucial role in calculating the weighted trust between users in our proposed approach. Based on the weighted trust value, the algorithm recommends top-N items to the user. The motivation behind the extraction of social relationships is to use the recommendations of friends.

Keywords: Social networks; Recommender System; Trust; Similarity

A GREEN 6G NETWORK ERA: ARCHITECTURE & PROPITIOUS TECHNOLOGIES

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Abstract. With the frequent growth in smartphones and media tablets, the industry of computer systems captured leadership from the industry of telecommunication in carry forwarding technological evolution. However, the principal component impacting growth of the future will be the extent to which spectrum policy as well as management can rise spectrum capacity and give the necessary radio spectrum frequency efficiency. This entry describes why this is the bounding component for 5G mobile communication evolution so, around the world the research organizations begun to look beyond fifth-generation network and it is expectance from 6G to develop into green networks which supplies high capacity of energy and Quality of Service (QoS). With the goal of fulfill the requirements of forthcoming applications, considerable changes require to be made in structure of mobile communication networks. This paper gives a survey in detail on wireless development towards green 6G networks with an aim to show a pathway for further research works in the field of green 6G networks.

Keywords: 6G, Blockchain, Green Network, IoT, Energy Harvesting.

ONION PRICE PREDICTION FOR THE MARKET OF KAYAMKULAM

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Abstract – Time Series data have been a routine part of our lives, be it weather forecast or Stock prices prediction of companies. ARIMA models have proved themselves to be in competent class of models to measure the occurrence of random variations present in any economic (price-based) time series. The same model, thus developed for the use in Stock prices can be used for prediction of rates of daily agricultural commodities which vary in pattern, seasonally. Therefore, the prime purpose of this research is to apply the popular ARIMA model on annual prices of Onion for the Market of Kayamkulam in Kerala.

Keywords: ARIMA.

A TECHNICAL REVIEW REPORT ON DEEP LEARNING APPROACH FOR SKIN CANCER DETECTION AND SEGMENTATION

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Abstract: Skin cancer is growth of abnormal cells, mainly caused due to exposure of ultraviolet rays from sun. There are various types of skin cancer, among them melanoma is the most hazardous. Manual detection of skin cancer is a time-consuming task. In order to reduce the time constraint various computer aided diagnosis are introduced. Among them deep learning is more advantageous because it can be performed on large amount of data. Deep learning is a subset of machine learning, which extracts features from raw input.

This paper deals with various deep learning architectures proposed by several researchers for detection and segmentation of skin cancer. The commonly used architectures for detection of skin cancer are convolutional neural network (CNN), k-nearest Neighbor (k-NN), artificial neural network (ANN), deep convolutional neural network (DCNN) & you only look once (YOLO). For skin cancer segmentation DermoNet, U-net, Grab Cut, saliency based & fully convolutional network (FCN) are used. For the above-mentioned architectures, the authors have used different datasets such as ISIC 2017, ISIC 2018, ISBI 2016, ISBI 2017 and PH2 for detection and segmentation of skin cancer. To access the correctness of segmentation & classification various performance measures such as: accuracy, sensitivity, specificity, Jaccard coefficient, Dice similarity coefficient, Hamoude distance, XOR and area under curve are computed for different architecture. A detailed comparison of various methods based on their performances is discussed in this paper. Among them the method using CNN has attained highest accuracy of 97.49%.

Keywords: Deep learning, melanoma, CNN and accuracy.

A SECURE EPIDEMIC ROUTING USING BLOCKCHAIN IN OPPORTUNISTIC INTERNET OF THINGS

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Devesh Sangwan

Abstract With expanding applications of the Opportunistic Internet of Things, there has been ever-increasing enthusiasm in integrating blockchain with the IoT for enhancing privacy and security. However, due to high resource consumption by the blockchain, its implementation becomes a potential task for IoT networks. The main purpose of the paper is to develop a lightweight and secure communication protocol using blockchain architecture for decentralized IoT networks. Blockchain keeps a track of the messages, which are transmitted through the network. A traditional opportunistic IoT network sends multiple copies of messages for communicating information from source to destination, which gives rise to the risk of network security. Therefore, this paper proposes a secure routing protocol based on epidemic nature by integrating blockchain to ensure security and privacy. The main idea behind using blockchain is to keep a distributed ledger of all the messages (transactions), which are being transmitted through the network. For the simulation of our proposed network, we use the Random Waypoint Model which we believe perfectly simulates the mobility of opportunistic devices.

Keywords: blockchain; epidemic routing; IoT; opportunistic IoT

IMPROVED MAC DESIGN BASED DYNAMIC DUTY CYCLE FOR VEHICULAR COMMUNICATIONS OVER M2M SYSTEM

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Abstract. With the growing proliferation of Machine to Machine (M2M) applications, several terminals will be deployed in many types of applications such as health, surveillance, industrial automation and especially transportation. This work concentrates on M2M networks in the Intelligent Transportation System (ITS) and consider areas of enhanced vehicular networking for M2M concepts. In M2M communications, an efficient Medium Access Control (MAC) is important to avoid such collisions by helping devices to decide when and

how to access support. This paper intends to develop robust MAC protocol-based contention to be used in intra-cluster for vehicular communication over M2M system. Our proposed is a Multi-Layers MAC protocol with an adaptive duty cycle that reduces the amount of energy wasted on idle-listening via sending all messages in a variable active period according to a load of traffic and return to sleep mode. Simulation results illustrate that our proposed outperforms other traditional MAC protocols in terms of energy consumption, average delay and collisions probability.

Keywords: M2M, ITS, VANET, MAC, Energy Consumption, Duty Cycle.

RUGGEDIZING LTE-SECURITY USING HYBRIDIZATION OF AES AND RSA TO PROVIDE DOUBLE LAYER SECURITY

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Abstract Achieving better security for transmission of data over cellular networks has always being a hard nut to crack. Security of LTE (Long Term Evolution) network is prime concern because of existence of malicious attackers. The security of network can be enhanced by utilizing cryptography. However, each cryptographic algorithm has its own pros and cons. So, hybridization (merging two or more algorithms) is one of the solutions to achieve better security. In this paper, double layer protection is implemented in order to ruggedize the security mechanism of LTE networks. Proposed algorithm utilizes better speed of AES and robust security of RSA (Rivest Shamir Adleman) together to achieve a hybrid system with improved performance compared to traditional algorithm. The cryptanalysis has been intricated by increasing the number of keys to six. Further the time required for encryption of keys is less when compared to decryption making the network more rugged and secure. In order to further enhance the speed, the concept of parallel processing is utilized. Then, proposed framework is analyzed based on various parameters and it is experimentally concluded that it provides approximately 22.7 % increment in acceleration when compared to encryption rate and about 22.3% increment in acceleration when compared to decryption rate. 10% enhancement in percentage of avalanche effect has been achieved thereby increasing confusion in cipher text and reducing chances of decoding. 5.39% increment in PSNR values of the proposed algorithm has been achieved when compared to existing algorithm.

Keywords Cryptosystem, AES, RSA algorithm, Private Key, Public key, Encryption, Decryption, LTE

PERFORMANCE EVALUATION OF MERGING TECHNIQUES FOR HANDLING SMALL SIZE FILES IN HDFS

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Abstract: -When dealing with the storage of large files, HDFS is one of the good choices as a distributed

storage. Processing a large number of small files results in the performance bottleneck of HDFS. A Massive number of small files will produce excessive metadata that leads to in-efficient utilization of the Name-Node memory and frequent function calls will consume all over more time to process, therefore it can be concluded that HDFS degrades when handling with small files. A detailed performance evaluation is being conducted to understand the impact of increasing small files in hadoop for processing. This paper mainly evaluates Sequential Files, Combine File Input Format, HAR and Hadoop Streaming techniques to deal with small file problem in HDFS. Empirical evaluation conducted in this paper shows that HAR and Combine File Input Format perform better and have consistent and stable results when increasing number of files for processing.

Keywords: - Hadoop, Map Reduce, HAR, Hadoop Streaming, Sequential-File, Combine File Input Format, Small Files, HDFS

ANALYSIS, VISUALIZATION AND FORECASTING OF COVID-19 OUTBREAK USING LSTM MODEL

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Abstract—The COVID-19 outbreak has been treated as a pandemic disease by the World Health Organization (WHO). Severe diseases like Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are caused by members of a large family of viruses called Coronavirus (CoV). A new strain was identified in humans in December 2019, named Coronavirus (COVID-19). The highest affected countries are unable to predict the pace of the outbreak of COVID-19. So, AI is helpful to analyze the COVID-19 outbreak in the world. We have used the LSTM model to predict the outbreak of COVID-19 all over the world with limited epidemiological data. A variant of RNN -Recurrent Neural Network which has the capability of learning long-term dependencies with feedback connections, also known as LSTM-Long Short-Term Memory, is used in resolving the problems related to time series in deep learning. LSTM is capable of processing a single data point and an entire sequence of data related to any field. We observe that the LSTM model is useful to predict the ongoing outbreak so that authorities can take preventive action earlier. The LSTM model result shows that the growth rate of infected cases of COVID-19 increased exponentially in every week.

Keywords—COVID-19; LSTM Model; LSTM Prediction

VIRTUAL MACHINE REPLICATION IN THE CLOUD COMPUTING SYSTEM USING FUZZY INFERENCE SYSTEM

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Abstract: Cloud computing provides various services and scalable computing resources through the internet. Due to the features that allow sharing and multiplexing computing resources across numerous tenants, cloud

reliability has gained an extensive foothold in recent times. However, in a cloud computing-based environment, it is critical to enhancing the reliability of cloud services such as the virtual machine (VM) based services. To ensure the reliability of VMs in the IaaS (Infrastructure as a Service) cloud computing model, this paper proposes two fuzzy inference systems (FIS) namely PMFIS1 (Physical Machine FIS1) and PMFIS2 for fault tolerance of VMs in cloud computing. The proposed inference systems use replication as a fault tolerance mechanism for VMs. These systems aid in the selection of optimal physical machines (PMs) to place the replicas of virtual machines (VMs). Implementation of proposed FIS is performed in MATLAB to compare the FISs with each other in terms of complexity, flexibility, and better selection of PMs. However, from the simulation result, it is observed that the PMFIS1 is less complex than PMFIS2 but the PMFIS2 is more flexible and makes a better selection of PM than PMFIS1.

Keywords: Cloud Computing, Virtual Machines, Fault Tolerance, Replication, Fuzzy Inference System.

A DIMENSIONAL REPRESENTATION OF DEPRESSIVE TEXT

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Abstract Depression is presently one of society's main psychological disorders. An intensified public mental health concern has been prompted by recent experiences with the emergence of corona virus disease 2019 (COVID-19). At present, the emphasis of research on human emotional state representation has changed from basic emotions to a large number of emotions in continuous three-dimensional space owing to the complexity of describing and evaluating a vast number of emotions within a single framework. Significant considerations of 3D continuous- valence, arousal and dominance space while overseeing mental health issues are important as they relate to the expression of emotion and behavioural reactions. The goal of this research is to design a machine learning regressor modal to estimate the continuous valence, arousal and dominance score which results from the process of emotional intelligence via text interpretation. In the pursuit of goal, EmoBank dataset, which contains text information as well as valence-arousal-dominance values and for validation ISEAR, a labelled corpus of categorical emotions datasets are used. We learn an embedding using three pre-trained word embeddings: word2vec, Doc2vec and BERT and find that BERT significantly outperforms the result. In a future study, the regressor model will be adopted in depression detection by distributing the categorical negative emotions in terms of VAD.

Keywords: Depression, Mental Health, COVID-19, Emotion, Emotional state, Valence, Arousal, Dominance, Textual data, Machine Learning, Word Embedding.

MACHINE LEARNING ALGORITHMS TO PREDICT POTENTIAL DROPOUT IN HIGH-SCHOOL

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Abstract : In a developing country like India, the growth of its citizens and consequently the advancement of the nation depends on the education provided to them. However, the process of delivering education has been hindered by considerable dropout rates which has multiple social and economic consequences. Hence, it is

crucial to find out ways to overcome this problem. The advent of machine learning and the availability of an immense amount of data has enabled the development of data science and consequently, its application in Education Institutions. Educational data mining enables the educator/teacher to monitor student requirement and provide the necessary response and counselling.. In this paper we use advance machine learning algorithms like logistic regression, decision trees and K-Nearest Neighbors to predict whether a student will drop out or continue his/her education. The accuracy of such models is calculated and studied. On the basis of the results it was found that ML techniques prove to be useful in this domain with random forest being the most accurate classifier for predicting dropout rate. Educational institutions can analyze which students may need more attention using this research as its base, thus modifying teaching methods to achieve the end goal of 0% dropout rate.

Keywords - Educational data mining, Classification, KNN, Decision tree, Logistic Regression Predictive analysis, Dropout detection

EXPLAINING DEEP LEARNING-BASED CLASSIFICATION OF TEXTUAL TWEETS

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Abstract. Social media platforms like Twitter, Facebook, Instagram allow users to share content, express their views, and generate a massive volume of sentiment rich data. The process of sentiment analysis (SA) classifies a sentiment, opinion, blog, or update into three categories, namely, *positive*, *negative*, and *neutral*. Nowadays, deep learning-based classification for such unstructured datasets has become popular due to its high performance. Hence, the proposed model builds a deep learning-based classifier to categorize the sentiments. Nevertheless, the classifier proves to be accurate; the question of why a particular statement is predicted as positive or negative sentiment remains unanswered. In the paper, we propose an explainable sentiment analysis model to explain the outcome of a classifier's instance using a model agnostic local interpretable model. For experimental purposes, two instances classified as positive and negative sentiments, respectively, have been explained successfully by Local Interpretable Model-agnostic Explanations (LIME) explainer along with their analysis.

Keywords: Explainable Artificial intelligence, Sentiment Analysis, Deep learning, LIME

EFFECT OF QUALITY OF EXISTING CONCRETE STRUCTURES IN AJDABIA REGION, LIBYA

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Abstract: In this research, the authors accomplished the statistical quality control of concrete. Data of 22 projects constructed by different companies have been randomly collected from Almetraka Laboratory for this research. Statistical analysis of the collected data has been completed according to ACI, BS and standards. This study reveals that the required average compressive strength f_{cr}' used in mix design of

concrete, of the all projects except one, does not meet the specified compressive strength criteria according to ACI-214 criteria. For example, the standard deviation for Project No. 10 was 1.82, which is less than 2.8 for the excellent construction quality control of the concrete work according to ACI. Nevertheless, it is noted that the calculated value of σ is 0.74 much less than 1.73 the approach one of the American standards. Therefore, implemented compressive strength of the concrete had been disapproved. Finally, based on the sustainable performance criteria recommendations had been made to Ajdabia Municipality's decision makers.

Key words:- Demolition wastes; Quality control; Concrete strength; Statistical Analysis

MACHINE LEARNING AND EVOLUTIONARY ALGORITHMS FOR THE DIAGNOSIS & DETECTION OF ALZHEIMER'S DISEASE

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Abstract : Alzheimer's disease is a chronic neurological disorder that generally progresses gradually and steadily gets worse over time. In 2050, Alzheimer's occurrence will rise to around every 33 seconds. Hence, early-stage diagnosis is both essential and crucial. Cancer is accountable for 60–70 percent of cases involving dementia. The early symptom found which is most common is difficulty in remembering recent events. As the disease progresses, signs may include language issues, disorientation (including getting lost easily), mood swings, and lack of energy, not managing self-care and behavioural problems. “Did I forget something this morning?” These types of questions start arising in the patient's mind. As the status of an individual deteriorates, they sometimes withdraw from family and community. Little by little, bodily functions are lost, which eventually leads to death. While the progression rate can vary, the average lifespan after an evaluation is three to nine years. The idea would be to use the evolutionary approach to extract the primary useful information from the Alzheimer dataset and use it in machine learning algorithms to increase the accuracy of the prediction, i.e., declaring whether the patient has Alzheimer's or not. Initially, we applied traditional machine learning algorithms, and we got an accuracy of 72%-84%. After feature selection by using different evolutionary algorithms, we got a hike of 5%-10% in accuracy, and the best accuracy of 95.71% was provided by Particle Swarm Optimization Algorithm and Bacterial Foraging Algorithm with Random Forest Classifier.

Keywords : Alzheimer's Disease, Machine Learning, Neurodegenerative Disease, Dementia, Evolutionary Algorithms, Python, K-Nearest Neighbor, Random Forest Classifier, Logistic Regression, Decision Tree Classifier, Support Vector Machine, Bernoulli Naive Bayes, Ant Colony Optimization, Artificial Bee Colony Optimization, Particle Swarm Optimization, Bacterial Foraging, and Bio-Inspired Algorithms.

COMPARISON OF VARIOUS WORD EMBEDDINGS FOR HATE-SPEECH DETECTION

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Abstract. Word Embedding plays a crucial role in natural language processing, and other related domains. The vast variety of language modelling and feature learning techniques often concludes in a quandary. The motivation behind this work was to produce comparative analysis among these methods and finally use them to flag hate-speech on social media. The progress in these word embedding techniques has led to remarkable results by incorporating various natural language applications. Understanding the different context of polysemous words is one of the features that evolved over time with these word embedding models. A systematic review on varying word embedding methodologies has been performed in this paper. Various experimental metrics have been used and detailed analysis has been done on each word embedding model. It is shown that analysis involves various aspects of the model like dealing with multi-sense words, and rarely occurring words, etc., and finally a coherent analysis report is presented. The various models under analysis are – Word2Vec (Skip-Gram, CBOW), GloVe, Fast-Text and ELMo. These models are then put to a real-life application in the form of Hate Speech detection of twitter data, and their individual capacities and accuracies are compared. Through this paper we show how ELMo uses different word embeddings for polysemous words to capture the context. We show how Hate speech can be better detected by ELMo because such speech requires better understanding of context of words for segregation from normal speech/text.

Keywords: Word2Vec, Skip-Gram, CBOW, GloVe, Fast-Text, ELMo, Word Embedding, Hate-Speech Detection

MULTIMODAL BIOMETRIC ALGORITHM USING IRIS, FINGER VEIN, FINGER PRINT WITH HYBRID GA, PSO FOR AUTHENTICATION

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Abstract : Biometric is emerging and promising technology to identify and authenticate human being. It is more robust, accurate and accurate. It is hard to imitate, forge, share, distribute and cannot be stolen, forgotten. After September 11, 2001 incident the biometric technologies are focused more. Integrating more than one biometric trait yields a promising solution to provide more security. It manages the variety of demerits in unimodal biometric systems such as non-universality, noise in sensed data, intra-class variations, distinctiveness, spoof attacks. The traditional way of authentication a human and their identity is resolved. The proposed method proves with experimental results on multimodal biometric algorithm for authentication using normalized score level fusion techniques and hybrid Genetic Algorithm and Particle Swarm Optimization for optimization in order to reduce the parameters considered for evaluation as False Acceptance Rate and False Rejection Rate and to enhance accuracy. In this proposed research work, it integrates Iris, Finger Vein and Finger Print biometric traits chosen for their best biometric characteristics. The experiment is conducted by SDUMLA-HMT Database and the state-of-art-algorithm is evaluated by metrics as False Acceptance Rate, False Rejection Rate, Equal Error Rate and Accuracy for proving that the claimed identity as genuine or imposter.

Keywords: Multimodal Biometrics, Genetic Algorithm, Particle Swarm Optimization.

EMPLOYING REAL-TIME OBJECT DETECTION FOR VISUALLY IMPAIRED PEOPLE

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Abstract. Visually impaired and blind people face several difficulties in their daily life. This was the primary motivation of this work as to create and assemble an object detector that can assist people with visual impairments using OpenCV and TensorFlow API on raspberry pi and provide an audio output for the detected objects using Espeak; Text to Speech Synthesizer. Single Shot (SSD) model with MobileNet v2 has been employed to perform the detection with high accuracy and processing speed. The scripts are written in python which utilize the model to recognize the objects with boxes and provide class of the objects. The recognized image category is extracted and stored in a text file. The developed system provides aid to a visually impaired person for performing tasks independently using real-time object detection and identification technology. Developed system can successfully provide information about detected object in the form of an audio output to the visually impaired person.

Keywords: Raspberry Pi, TensorFlow, Faster-RCNN, OpenCV, Python, Text-To-Speech Synthesizer

DDOS ATTACKS IMPACT ON DATA TRANSFER IN IOT-MANET BASED E-HEALTHCARE FOR TACKLING COVID-19

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Abstract. The Covid-19, a pandemic situation, effects the economy of the whole world severely and is gaining much huge attention in the field of research currently across the globe. The IoT (Internet of Things) technology is playing a great role for taking care of the patient's by monitoring and controlling the symptoms and is very much essential for the developing countries, where monitoring of health of huge population has its own challenges. So the IoT and its amalgamation with Mobile Adhoc Network (MANET) acts as base of networks where devices sends information among each other wirelessly thus also named as Wireless Mesh Networks (WMN), in which various nodes are either stationary or allied with static position. Sensors and different other devices involved in e-healthcare sector used in WMN converse wirelessly, and hence becomes the main gate to a numerous susceptibility. The main aim of this research study is to evaluate the performance of reactive, secured and hybrid routing protocols for throughput as one of the important QoS (Quality of Service) parameter in absence as well as in presence of DDoS (Distributed Denial of Service). The NS-2(network simulator) is used to simulate AODV (Adhoc On Demand Vector, SAODV(Secured AODV) and Hybrid Wireless Mesh Protocol) in scenario of changing nodes. The comparative analysis concludes the HWMP as most suitable protocol among the other two routing protocols with impact on throughput for handling DDoS attacks. This research study aids in providing implications to enhance existing protocols and alleviate the consequence of DDoS instigated by such attacks.

Keywords: AODV, HWMP, Throughput, IoT-MANET Adhoc Networks for E-Healthcare

BER PERFORMANCE ANALYSIS OF MMSE WITH ZF AND ML SYMBOL DETECTION FOR HARD DECISION MU-MIMO LTE ON RAYLEIGH FADING CHANNEL

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Abstract : Before moving towards the 5G systems, we have to improve the symbol estimation techniques in the present 4g network to intensify the system performance. There are many symbol estimation techniques for MIMO LTE-A systems, among these techniques and after many researches it is found that Zero Forcing, Maximal Ratio Combining, and the Minimum Mean Square Error are mostly used. We have focused on the analysis of these techniques. In the MU-MIMO system, we tried to double the data rate and minimize the BER (Bit Error Rate) using MMSE estimation using channel interpolation in the frequency domain. Here, we compared the performance on an AWGN and Rayleigh channel of channel estimation techniques using “ZF”, “ML” and “MMSE” on a 2x2 MIMO LTE system with BPSK, QPSK and 16 QAM using the VITERBI hard decision method of analysis. Then we modified the system with a 4x4 MU-MIMO LTE system and calculated the BER and analysed. Simulation results showed that among these techniques, “ML” is a salient feature in characterizing the performance of the data channel and the LS and MSME behaved very similar to each other on a 2x2 MIMO system. Further, simulating the results we have showed that the MMSE MIMO detector slightly outperforms as compared to Least Square (LS) on SINR.

Keywords: MIMO-OFDM, MMSE, ML, ZF, BER, AWGN, RAYLEIGH CHANNEL

TRAFFIC CONGESTION ANALYSIS AND OCCUPANCY PARAMETER IN INDIA

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Abstract: This study focuses on the traffic congestion analysis in the developing country, especially in a major city in India and introduces the traffic congestion method by using occupancy which is one of traffic flow parameter. In general, it is hard to make the traffic flow analysis in the developing countries because their road infrastructure is not able to catch up with their rapid growing transportation condition. Therefore, their traffic congestion becomes heavier and causes the serious negative impact such as traffic accidents, air pollution, unnecessary fuel consumption, health problem and so on. The uniqueness of this study is the following three items. At first, this study is based on one month measured traffic data in the city and shows its traffic flow characteristics comparing with the traffic flow theory. In the second, it introduces combination traffic congestion analysis method by calculating the traffic occupancy from the compared traffic flow characteristics. In the third, it shows the validation of the new traffic congestion analysis method by comparing the occupancy measurement data.

Keywords: traffic flow, traffic congestion, traffic fundamental characteristics

PERFORMANCE EVALUATION AND COMPARISON STUDY OF OFDM IN AWGN AND COLORED NOISE ENVIRONMENT

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Abstract: In modern wireless communication system Orthogonal Frequency Division Multiplexing (OFDM) gathers interest by reason of its numerous advantages like high spectrum efficiency, immunity against Additive White Gaussian Noise (AWGN), impulsive noise, multi-path fading and high bit rate capacity etc. The AWGN channel is theoretical, simple, and is generally considered as the starting point to develop the basic system for the performance evaluation purpose. In practical situations, however, noise is not AWGN and can rather be better approximated as colored noise. Thus it becomes important to evaluate the performance of communication systems under the colored noise environment and compare the same with the case when noise is AWGN. This is the objective of this work, and, is carried out in this paper. MATLAB R2014 is used for performance evaluation and comparison study. For lower values of SNRs, SNR 0 dB, $BER_{Colored} < BER_{AWGN}$, (BDF > 0) is observed, however, for SNR > 0 dB, the $BER_{Colored}$ is found to be almost similar to BER_{AWGN} leading to small BDF. This study is important in view of analyzing the OFDM system performance in colored noise and comparing it with the case when channel is theoretical, that is, AWGN.

PERFORMANCE IMPROVEMENT USING SPLINE LS AND MMSE DFT CHANNEL ESTIMATION TECHNIQUE IN MIMO OFDM USING BLOCK TYPE PILOT STRUCTURE

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Abstract: Multiple Input Multiple Output (MIMO) is a very important and prominent key technology in wireless system which is extensively used in 4G systems. However, accurate channel estimation poses a challenge in reducing error rate in MIMO- LTE system. For choosing a correct estimate for the MIMO LTE system there are many aspects for implementation which include time variation, computation and performance of the channel like Rayleigh or Rician. The Least Square (LS) and minimum mean square error (MMSE) are the two well- known techniques for estimating the channel. In this paper, we used these techniques along with linear and cubic spline interpolation techniques. In this work, Discrete Fourier Transform (DFT) based channel estimation technique is presented for improvement in the performance of MMSE and LS estimation techniques using block type pilot arrangement. Signal to noise ratio and BER performance of all channel estimation schemes have been evaluated with modulation techniques, MQAM and MPSK over Rayleigh and AWGN noise channels. This paper presents that DFT channel estimation scheme improves the performance of LS and MMSE channel estimation via noise reduction outside channel delay for 2x2 MIMO system.

Keywords –LS, MMSE, DFT, MIMO, OFDM, Interpolation

DEEP LEARNING APPROACH FOR SPEECH EMOTION RECOGNITION

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Abstract. Emotion recognition plays a dominant role in man-machine interaction. This research paper proposes the detection of human emotions through the study of speech signals. The main motivation of recognition of emotions from speech signals is to increase the communication between man and machines that is advantageous in numerous fields like call centers, lie detection machines, clinical studies, and computer games, etc. In this work, to extract the features, the well-known Mel-frequency Cepstral Coefficient (MFCC) feature extraction technique is used, and Convolutional Neural Networks are used to classify the emotions. According to the results the model achieves the accuracy of 92% for eight emotions on the RAVDEES dataset.

Keywords: Emotions, Man-machine interaction, Feature extraction, MFCC, Convolution neural networks

DETECTION OF CACHE POLLUTION ATTACKS IN A SECURE INFORMATION CENTRIC NETWORK

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Abstract : The future of Internet architectures is Information-Centric Networking structure, to solve the problems of content spoofing attacks in the current Internet structure, making it more useful for IoT based applications. The ICN is structured with the Internet forwarding state technology which is an advanced technology with a comparative structure. In this paper, we are concentrating on the Internet forwarding strategy which uses data forwarding in NDN based networking. It understands content priority and prefixes the content parameter and passes through the Named Data network to deliver the packet based on the demands. Also, future internet router cache could face the problem of overflowing with non-popular content due to Cache pollution attack (CPA), i.e., the router keeps receiving requests for vulnerable content. The detection and defense against such spoofing attacks are especially difficult due to Cache Pollution Attack's similarities with every other consumer request. Based on the hobby content priority, named records networking accelerates the process and decreases the traffic to reach the request with low latency site visitors. We thereby address the present-day measures, arrangements and endeavors of the apparatus's applied clustering approach to discover and defend against CPAs. Finally, we recommend the improved decision tree method where once any attack is detected, an assault table will be updated to report any abnormal requests. While such requests are nevertheless forwarded, the corresponding content chunks aren't cached. We carry out the above technique simulations with the aid of ndnSIM.

Keywords—ICN (Information Centric Networking), Content Pollution Attack, Clustering, False Locality Attack, Location Distribution Attack, Internet of Things, Smart Agriculture, Attack Detection.

EFFECTS OF SOCIAL DISTANCING ON SPREAD OF A

PANDEMIC: SIMULATING TRENDS OF COVID-19 IN INDIA

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Abstract. Most of the diseases spread from human-to-human which makes it dangerous for anyone who comes in contact with an infected being. The key point to note here is that such a spread gives rise to a network where nodes represent humans and edges show if two humans came in contact with each other or not. Studying and analyzing pandemic networks helps in managing the spread of disease efficiently. The recent coronavirus (COVID-19) outbreak that was first identified in December 2019 in Wuhan, Hubei province, China according to WHO reports, is an apt example of a deadly contagious disease. India has been fighting the virus since February 2020 relentlessly, with the scientists experimenting to find a cure for the disease, and healthcare personnel along with other essential workers ensuring that all necessary preventive and protective measures are being taken to reduce health risks. In our proposed study, we aim at forecasting the spread of COVID-19 in India with the help of SEIR-DH and linear regression model, by simulating the dynamics of disease spreading in a large population. We also aim to mathematically depict how increasing the severity of social distancing can affect the spread of the disease. The results of our study indicate that increasing the strictness of social distancing measures can help reduce the overall number of infected patients and also help flatten the epidemic curve of COVID-19 spread. The curve depicts the number of infected patients requiring healthcare for combating the disease over time.

Keywords: Coronavirus (COVID-19), Pandemic, India, Social distancing, Contagious diseases, SEIR-DH model.

IMPLEMENTATION OF EAODV BASED SON FOR BALANCED ENERGY EFFICIENT ROUTING USING TREE FOR WSN

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Abstract: Wireless sensor networks (WSN) the primary exploration hotspot for WSN is power usage. As electrical power drains more quickly, the system lifetime additionally reduces. Self-Organizing Networks (SON) are simply the option just for the above discussed issue. SON may right away configure themselves, come across an optimal remedy, detect as well as selfheal to some degree. With this effort, is created to utilizes self-organization to balance power and therefore bring down power ingestion. This particular process utilizes a mixture of variety of neighboring residual energy and nodes since the requirements for effective group awareness election to develop a tree-based bunch building. The threshold for recurring vitality as well as distance are identified to determine the route of the information transmission that is energy-efficient. The enhancement manufactured in selecting strong details for group awareness election and cost-efficient details transmission leads to reduced power use. The setup on the suggested process is carried through in NS2 atmosphere. The test is done by different the node density as 20, 40 as well as 60 nodes along with 2 pause situations 5ms, 10ms. The evaluation of the end result suggests the brand-new process eats 17.6 % much less power compared to current techniques.

Keywords: EAODV, SON, NS2, Balanced Energy Routing, Threshold, WSN.

AN EFFICIENT TECHNIQUE FOR TRAFFIC ESTIMATION

USING VIRTUAL TRIP LINES IN PROBE VEHICLES

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Abstract Estimating traffic continuously is an important principle serviceability of Urban communities. In order to decrease the expenses of arrangement and activity, traffic estimation with vehicles has been broadly studied. The main aim of this paper is to propose a traffic observing framework utilizing vehicles. The proposed calculation has the benefit of having an extremely low data processing expenses, permitting the majority of the pre-preparation to be done in the vehicles and consequently making conceivable the incorporated assortment of countless estimations. The proposed framework is made out of two calculations; a Virtual Trip Line that evaluates the traffic and a traffic information authority that totals the data from numerous vehicles and consolidates with data authorities. The framework has been tried in a genuine situation, contrasting its exactness and a customary congestion demodulator, demonstrating its precision.

Keywords: GPS; Guide coordinating; Traffic observing framework; VTLD.

AUTOMATED ATTENDANCE MANAGEMENT USING HYBRID APPROACH IN IMAGE PROCESSING

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Abstract. Image processing, which is a significant field of Machine Learning and falls under the age of Artificial Intelligence, is used worldwide to achieve face detection and recognition. Image processing focuses on two tasks, namely the enhancement of image for our interpretation and reading image data to store, transmit, and represent image perception via machines. The project focuses on the implementation of Machine Learning and Image processing to automate attendance management in a corporate/personal space. In the current scenario, most corporate spaces make use of biometric systems to mark attendance, which is both time-consuming as well as costly. Setting up a working space with the biometric system also requires an individual with professional knowledge of the same. Our primary focus is to build a robust and automated security system capable of monitoring attendance without much human interference.

Keywords: AdaBoost, Eigenfaces, Haar Cascade, LDA, PCA, Viola-Jones algorithm.

REAL-TIME, YOLO BASED INTELLIGENT SURVEILLANCE & MONITORING SYSTEM USING JETSON-TX2

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Abstract. In recent years, real-time surveillance and monitoring system is getting importance because of security reasons. Government organizations, residential areas, commercial complexes, schools and colleges, industries, borders, and others require a dedicated surveillance system. The traditional surveillance systems do not provide real-time objects identification and alerts. This paper aims to design and develop a Real-time Object Detection and Alert System (ODAS). The proposed system could be used as a surveillance and monitoring system. The object detection system uses the YOLO framework to detect objects within images and live videos. Object identity, timestamp, along with bounding box image, are marked by the detection system and stored locally. Also, the collected information is transmitted to the server in real-time. At the server, the Graphical User Interface (GUI) application continuously gathers information from different nodes, analyze it, and fires an alert message if the anomalies/targeted object is found. GUI also facilitates us to analyze the obtained information of an individual node or in the combination, that infers the direction of movement made by a detected object and its current position. ODAS also take the services of the real-time database to provide real-time updates of anomalies on the android phone/tablet.

Keywords: YOLO, Object Detection, Surveillance System, Jetson-TX2, IoT.

RESOURCE ALLOCATION TECHNIQUE USING SELF BALANCING FAST MIN-MIN ALGORITHM

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Abstract With rising IT industry demands, there is a huge need of computational power and services for purposes such as research, software development, content hosting, and infrastructure management among others. Such tasks require expensive hardware on a large scale that has huge maintenance and other costs associated with it. Cloud computing is the delivery of computational services like servers, databases, networking tools, storage, software, analytic tools, and intelligence over the Internet which offers economies of scale, flexible and efficient resources, and technological innovation. Cloud computing systems consist of a number of servers, each hosting a number of instances of virtual machines (VMs). When a job arrives, it needs to be allocated to one of the running VMs. This allocation of jobs to VMs is a NP complete problem. This paper presents an efficient Self-balancing fast Min-Min (SBFMM) algorithm devised to improve upon the short comings of the Min-Min algorithm by keeping the best machine available for relatively heavier tasks. SBFMM algorithm reduces Make span and balances load better among the VMs as compared to traditional MinMin. SBFMM achieved an approximate 12-15% reduction in makespan as compared to MinMin algorithm for the data tested.

Index Terms Cloud Computing, Resource Allocation, MinMin Algorithm, Makespan, Load Balancing

ROUTING PROTOCOL BASED ON NSGA-II FOR SOCIAL OPPORTUNISTIC NETWORKS

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Abstract In the Social opportunistic networks (SONs), nodes inspect the transmission area concurrently for data forwarding and discover relevant relay neighbors to accomplish effective message transmission. The context information of the nodes like distance, contact duration, encounter, centralities, tie strength, etc. are analyzed to find out right relay nodes that support in designing an efficient routing protocol. Developing such kind of routing protocols that optimize multiple conflicting objectives is computationally strenuous. This paper proposes a Non-dominated sorting Genetic algorithm-II based routing protocol for social opportunistic Networks (NSRP). NSRP uses NSGA-II for optimizing the node's average forwarding delay degree, and the collaboration probability objective functions to get non-dominated solutions for message passing. This proposed protocol is robust and expected to produce high delivery ratio by optimizing multiple parameters of the SONs.

Keywords: NSGA-II, average forwarding delay degree, collaboration probability, relay nodes, Social opportunistic networks

CONNECTED PUBLIC TRANSPORTATION SYSTEM FOR SMART CITY

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Abstract: Raise in the number of mishaps, packed Busses, trains roads turned parking lots and squandering cash on the wrong method of transport is turning into a significant cerebral pain in the vast majority of the Metro Politian urban communities in India. At times regardless of whether we pick the correct mode of transport, we may not be on time at our desired destination. The reason for this study is to build up an associated open connected vehicle framework that gives the quickest efficient and the protected method of transport to arrive at our destination in a given circumstance. Utilizing the accessible data about various methods of transport from the official sites a prototype has been developed which examines the various approaches to our destination at the most elevated level of solace at our spending plan. The prototype gets the fundamental information from the client and gives the most ideal approach to arrive at the destination. The model encourages us to diminish the number of mishaps and accidents caused because of wrong decision of transport and lessens the car influx and time taken to travel. It likewise builds the effectiveness of various methods of transport. Further improvements are expected to build up further developed and savvy model which can additionally break down and track the developments of the client in their journey to give greater security during their travel.

FIBROID SEGMENTATION IN ULTRASOUND UTERUS IMAGES USING WAVELET FILTER AND ACTIVE CONTOUR MODEL

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Abstract. The peculiar growth existing in the uterus wall is uterus fibroids. These fibroids can lead to infertility concerns and is a major issue among women nowadays. CT scan, ultrasound scan and MRI scan

are some techniques to detect uterus fibroids. Among these techniques' ultrasound images are precise tool to detect the uterus disorders. Less detectable boundaries, size and positions are perplexing task in detection of fibroid from ultrasound images. On ultra sound image it appear as round with areas with a discrete border. A foremost issue is the presence of speckle in ultrasound fibroid image. Speckle noise be subject to the composition of image tissue and parameters of image. It reduces the effectiveness of many image processing steps and decreases human perception of fine details form ultrasound images. In this paper wavelet filter is applied to shrink this speckle form fibroid scanned image. Active contour method is used to segment fibroid from wavelet filtered image. It is perceived that fibroids from ultrasound images are segmented accurately and the accuracy of detection is above 95%. This method segmented the fibroid and extracts some shape-based features also which helps doctors to decide the method of treatment.

Keywords: Fibroid, Uterus, Ultrasonic Imaging, Active contour, wavelet

YOLOV3 REMOTE SENSING SAR SHIP IMAGE DETECTION

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Abstract- Deep Learning has proved to be useful for ship detection in SAR satellite images. SAR is a satellite that can be used to capture images from Earth's surface even in unfavorable weather conditions. Although many object detections models have been applied to this problem previously. We wanted to use a model that was fast and accurate. In this paper we use You Only Look Once version-3 (YOLOv3) and compare its results with You Only Look Once version-2 (YOLOv2). The motivation was to improve upon the results of YOLOv2. The results show that YOLOv3 achieved 90.25 Average Precision (AP) compared to 90.05 AP of YOLOv2. Furthermore, YOLOv3 gave an inference time of 22 ms against 25 ms of YOLOv2. The dataset used is: A SAR Dataset of Ship Detection for Deep Learning under Complex Backgrounds, the dataset consists of 43,819 images of 256 x 256 pixels. The dataset contains Gaofen-3 and Sentinel-1 satellite images.

Keywords- YOLOv3; remote sensing; synthetic aperture radar (SAR) images; object detection; ship detection

PARAMETRIC OPTIMIZATION OF IMPROVED SENSING SCHEME IN MULTI-ANTENNA COGNITIVE RADIO NETWORK OVER ERRONEOUS CHANNEL

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Abstract In this paper, we discussed the parametric optimization of improved sensing schemes in multi-antenna Cognitive radio (CR) networks over an erroneous channel. The CR utilizes an improved energy detector (IED) by making the binary decision statistics of the absence or presence of a primary user. From primary users' statistics, the improved energy detector measures power with respect to the threshold so as to

make correct spectrum decisions. This decision is further transferred to the fusion center (FC) by the erroneous channel, which decides the complete decision of the existence of PU. For the detection of the spectrum hole, and to obtain an optimized number of CRs, we minimize the total error rate (TER) in cooperative spectrum sensing. An optimized value of sensing threshold, and arbitrary positive power (p) of each CR is also accessed by considering the TER. The numerical based simulation results show the validation of correct sensing performance.

IDENTIFICATION OF DIABETIC RETINOPATHY FOR RETINAL IMAGES USING FEED FORWARD NEURAL NETWORK

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Abstract. Diabetic Retinopathy is an eye disease mainly affects the people having diabetes and early identification is required to avoid vision loss. It can be done by trained ophthalmologist but there are less in numbers hence, computer aided diagnosis system is used for automatic screening. In this paper, input image is taken from Indian Diabetic Retinopathy Image Dataset and histogram equalization, top-hat filters are used for enhancing retinal fundus images. Haralick features are extracted from the gray scaled image and filtered image and given to the feed forward neural network classifier. The accuracy obtained from the gray scaled image is 90% and the accuracy obtained from filtered image is 95%.

Keywords: Retinal image; Computer-Aided Diagnosis; Image Enhancement; Retinal disease; Histogram Equalization; Tophat Filter.

AMELIORATING ACCURACY USING DUAL DIMENSIONALITY REDUCTION ON A CLASSIFICATION DATASET

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Abstract-In this era of globally interconnected networks, we have huge amounts of data. The data is increasing not in gigabytes or terabytes but in terms of trillions of zettabytes and yottabytes. This data can be used in the field of Machine Learning and Artificial Intelligence so as to get intelligent machines that can have virtual brains to take and execute decisions. In practice, Machine Learning is used to train our machines with a specific training set of data in order to develop an efficient algorithm. Once an efficient algorithm is developed our machine is smart enough to predict the results further. Hence, data is the source food that needs to be supplied to our algorithm and the efficiency of our algorithm is directly proportional to the amount of data that we provide to it. But not all the data is important for the study and we need to eliminate the unnecessary and redundant information out of that data. In order to do that the concept of Dimensionality Reduction comes into play. By using Dimensionality Reduction we extract only the essential features of our data and use it for our study. We get the motivation behind this study from the fact that the Dimensionality Reduction techniques used commonly does not increase the accuracy significantly and the problem of over fitting was not rectified too. Hence, in this paper we have used the concept of dual dimensionality reduction to increase the efficiency even more and combat the problem of over fitting. In this

paper we have improved the accuracy of the dimensionality reduction by using the concept of dual dimensionality reduction in which we have used a combination of various other dimensionality reduction algorithms.

Keywords- Machine Learning, Artificial Intelligence, Training Set, Dimensionality Reduction, Factor Analysis, ICA, SVD, PCA, U-MAP, ISOMAP.

DATA IMPUTATION IN WIRELESS SENSOR NETWORK USING DEEP LEARNING TECHNIQUES

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Abstract Missing information in the sequence of data provided by the wireless sensor network is a prevalent issue. There can be many reasons which may be responsible for this like network loss, sensor maintenance, sensor failure. Retrieving the missing data from the time series data obtained by the wireless sensor network proves to be a difficult task. There have been many methods which try to recover this data, but limitation still exists. Proposed work discusses the use of deep learning algorithms for the time series prediction of WSN data generated from real-time sensor devices. This paper examines various techniques available in deep learning for time series forecasting and analyses the results obtained from various methods and at the end, gives the best hybrid combination of which contains the Bidirectional LSTM layer for a deep examination of the pattern in the data. The main motivation behind the work is to improve the working environment of the WSN fields, automate the various process of maintenance and to provide an effective method of data imputation in the wireless sensor network in a real-time environment when there is a scarcity of data. Also, develop a method for effective forecasting. Another approach that is examined is a CNN layer to find the positional pattern in the data, Attention mechanism to put more focus on the relevant part of the sequence, an LSTM layer which makes it an encoder-decoder model, A dense layer at the end to produce the output in the desired shape. The model is trained and tested on Beijing Air Pollution PM2.5 Dataset. To overcome the problem of lower availability of data VLSW algorithm is used, which helped in generating the large sample of training data from the limited available datasets. After analyzing and studying the various models and their results with various hyperparameters tried, it is concluded that the Model with the LSTM Attention mechanism with the encoder decoder model along with VLSW works best for long-missing time series data imputation. Other studied models and their results are summarized too. This work concludes based on the practical and real-time application of data imputation that the CNN model with online training works best as it takes less time and resources to train. The results obtained are better from the existing solution available. The SSIM model with VLSW performed 31% more efficient than other methods, while CNN without VLSW performed 76% more efficient than other methods.

ANALYSIS OF COVID-19 DATA USING MACHINE LEARNING TECHNIQUES

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Abstract: Coronavirus(COVID-19) has impacted the entire world and researchers across the globe are working day and night to identify and predict the patterns related to it. Hundreds of clinical trials are underway to generate the possible cure of the disease. The devastating and uncontrolled worldwide spread of COVID-19 triggered unprecedented global lock-downs and a massive burden on healthcare systems. WHO has recommended an immediate research study of the existing data to understand the care and measures required for COVID-19? In this paper we have listed various machine learning approaches that have been used in the past for the formulation of pandemics e.g., Ebola, H1N1 influenza, Zika, norovirus. Paper also

discusses the analysis of COVID-19 patients' data to classify and predict people based on their vulnerability or resistance to potential COVID-19 infection. Recommendation of various machine learning models to predict the pattern of the COVID-19 related parameters has also been presented. We have also analyzed real-time COVID-19 dataset having data from countries across the globe to understand the pattern of the outbreak of coronavirus

Keywords: COVID-19, Machine Learning, Artificial Intelligence, Pattern Identification, Clustering, Classification.

CAPGEN: A NEURAL IMAGE CAPTION GENERATOR WITH SPEECH SYNTHESIS

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Abstract : Computer vision and natural language processing play a crucial role in automatic depiction of contents in an image. Image captioning is a fundamental problem in the field of artificial intelligence. In this paper, we anticipate present a generative model based on a deep recurrent neural network structure that joins the latest advances in computer vision and natural language translation so as to generate coherent sentences describing an image. In this endeavour, a hybrid framework is proposed utilizing the multilayer Convolutional Neural Network model to produce human apprehensible descriptions of the pictures using a Long Short-Term Memory to precisely structure coherent sentences utilizing the partial captions produced from the considered dataset. The convolutional neural network model looks at the objective picture to an enormous dataset of preparing pictures, to produce a precise portrayal utilizing the prepared inscriptions of data. The model is prepared to amplify the probability of the target words based on maximum likelihood estimation using the given training set. We feature the effectiveness of our proposed model utilizing the Flickr8K dataset. Apart from human evaluation, we were able achieve a cumulative score of 0.693 in the BLEU metric using 200 images at random from the validation and test dataset.

Keywords : Computer Vision, Artificial Intelligence, Deep Learning, Image Captioning

AN IMPROVED METHOD FOR DENOISING OF ELECTROCARDIOGRAM SIGNALS

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Abstract: Today, the prospect of human's life become limited because of cardiovascular diseases (CVDs). The CVDs is the one of leading cause of mortality. Electrocardiogram (ECG) is the only tool which measures the electrical activity of the human heart variations in the form of signal. During recording, ECG signal contains various type of noises. So, for analysis of ECG signal, noise must be removed. There is different type of noises exist in ECG signal that is Baseline wander, Power line interference, EMG. In this paper, an improved method as combination of median filter, Savitzky- Golay (SG) filtering and wavelet transform is presented for the reduction of noises from the ECG signal. The proposed method is validated on standard database of MIT-BIH for different records and measured in the form of signal to noise ratio (SNR) and compared these results with the existing works. The results show that proposed method archived better SNR than that reported in other literature.

Keywords: Electrocardiogram, Base line wander, Power line interference, EMG, Signal to Noise ratio, Savitzky-Golay filter, Wavelet Transform

PRODUCT RECOMMENDATION PLATFORM BASED ON NATURAL LANGUAGE PROCESSING

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Abstract : Online Videos command a majority portion of the world's internet traffic. In 2019, consumer Internet video traffic had accounted for 80% of all consumer Internet traffic. At the forefront of this are platforms like YouTube. As the consumption of the online videos increases, it is imperative for various platforms to be able to monetize these videos using relevant advertisements. To maximize revenue from ads, we propose a method of ranking and sorting products based on relevancy to a given video. Using the metadata and captions, the system aims to generate product recommendations that a user may find useful. The system uses Rapid Automatic Keyword Extraction to find the words that best summarize the video and proposes recommendations using similarity measures. The system is then evaluated on a database. Finally, we proceeded to conduct an extensive User Study to judge the accuracy of our system. The results conclude that the proposed model is capable of recommending contextually relevant products for a wide variety of Online videos.

A SECURED SUPPLY CHAIN NETWORK FOR ROUTE OPTIMIZATION AND PRODUCT TRACEABILITY USING BLOCKCHAIN IN INTERNET OF THINGS

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Abstract The conventional method of implementing supply chain management suffers several limitations like cost, unpredictability, complicated environment, and wide-open access to sensitive information. To defeat these issues the supply chains should be progressively more intelligent. To build a large-scale smart infrastructure of physical objects, products, and all the other supply chain-related processes, supply chain management can be integrated with the Internet of Things (IoT). Open interrelation communication opens several threats in the Supply chain environment. In the proposed work, we construct a Supply Chain Network (SCN) secured with blockchain to find the optimum route of a product from a manufacturer to customer and to trace back a product to its origin. A genetic algorithm-based scheme is used to find the optimum route for a product and approach to trace back the origin of a product is proposed, which is especially beneficial in cases like a product turning out to be infected and the need to track the rest of the products of that batch. Simulation

results are compared using two different consensus for verification of transactions: PoW and proof of elapsed time. Graphical results shows that proof of elapsed time outperforms PoW in terms of cost, processing power and transaction verify per second.

Keywords: IoT, blockchain, supply chain, route optimization

ENHANCING IMAGE RESOLUTION AND DENOISING USING AUTO-ENCODER

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Abstract: Nowadays, in real-time image processing is involved in various sectors like security, health care, banking and face recognition. While capturing an image, there is more chance of noise engaged with multiple aspects of the surroundings. To improve the quality of the image and to get better classification results, we need to clean the picture, which is called pre-processing of the image. For the past 30 years, there is tremendous re-search happening on image processing by many researchers. Deep learning based autoencoders are producing better results with minimum loss. Image denoising can be achieved with autoencoder architecture. The de-noised image is taken as input to the next level to improve the resolution. In this paper, we have considered the popular dataset fashion mnist to de-noising the image, which includes the noise. We used back to back autoencoders to perform both image denoising and resolution enhancement. In this approach, we can do the pre-processing stage once on the dataset for both image denoising and enhancement of image resolution. We have used binary cross-entropy as loss function to evaluate the performance of the model, and later we have focused on improving the resolution to the im-age. Denoising of an image followed by resolution enhancements in the same process minimizes the time and pre-processing steps separately.

Keywords: Image denoising, noise, auto encoder, CNN, Super Resolution, Deep Learning

DETECTING ORGANIC AUDIENCE INVOLVEMENT ON SOCIAL MEDIA PLATFORMS FOR BETTER INFLUENCER MARKETING AND TRUST BASED E-COMMERCE EXPERIENCE

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Abstract: This study addresses a major problem of online advertisement. Usage of internet and specifically social media platforms for promoting businesses and services has seen a drastic increase in the recent times. Influencer based marketing is a major area for promotion. With its major dominance, comes its downsides. This influencer-based model alternatively being referred to as influencer marketing, has a major drawback which concerns one of the foremost aspects of digital media, organic and inorganic results. Many of the social media platforms involve inorganic audience which includes fake popularity for the concerned account. This heavily impacts the advertisements business being run on social media and other platforms. This could lead to wrong audience impact involving losses for the business as well as the customers being targeted. In this study, a trust-based model is designed in which the social media platform, Instagram is checked for fake audience involvement and their consecutive detection for better future impressions. For the detection of inorganic audience involvement, firstly, a study is done regarding the parameters that could assist the detection process. These parameters are further used to generate the nodes of a decision tree. Second of all, the dataset is prepared for the detection process. Machine learning is used to make the predictions on the dataset as with minimum human intervention, it can help automate the entire process and make it much faster than manual detection. Decision tree is then

applied to the data set for building a prediction-based model, which is used to predict the occurrence of fake accounts in test dataset. This is followed by the concluding of the result in which prediction has been done. Also the accuracy of the same has been checked in the conclusion with the help of confusion matrix which turns out to have a good accuracy, thus, successfully concluding the study.

Keywords: Inorganic Audience, Machine Learning, Decision Tree, Influencer Marketing, Social Media Platforms, Confusion Matrix

A FRAMEWORK FOR SANDBOXING OF PANDEMIC SPREAD

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Abstract : Pandemic disease, like Corona spreading by social contacts, needs ‘lockdown’, a measure to limit the virus spread. But the measure is too expensive for a nation for its adverse impact on national economy. Sandboxing followed in system security, is a proactive and resilient mechanism that allows a system to function either in full or partial capacity without compromising its security. Similarly, In order to limit a community spread with resilience, a proactive mechanism is required to predict and safeguard the area that’s the most vulnerable to a pandemic disease infection and has the potential of a super spreader resulting to a community spread. The early care of the region may protect it from a community spread of an infection. Social Analytics on immunity and connectivity are proposed in this research paper to predict the vulnerable regions. Based on this idea a tool is under development and this paper presents a framework of the tool.

HYBRID RECOMMENDER SYSTEM USING ARTIFICIAL BEE COLONY BASED ON GRAPH DATABASE

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Abstract. Recommender systems hoard appropriate suggestions guided by the interactions and previous choices of the users. In a world of the ever-growing amount of data, we are overpopulated with undesired information, which is making it difficult to operate or choose. Hence, we require a recommender system that is enough capable to deduce desired suggestions which can be valuable for the users. Thus, they are rising in popularity and becoming part and parcel of day to day activities in our general life. Here in this paper, we implement the recommender system, which is conceptualized on a hybrid filtering algorithm that helps in dealing with limitations of both content and collaborative filtering reinforced with Artificial Bee Colony Optimization along with K- Nearest Neighbor for better performance. For this purpose, we used Movie Lens dataset, which contains information regarding users, movies, and ratings given by the users. Here we gathered a pre-filled user project scoring matrix and have compared multiple models of recommender systems for their precision and recall factor. We are using a recommender system based on graph database which uses graph traversal and pathfinding algorithms to establish relations and hence is more robust and faster in implementation. The thickness of the edges connecting movie nodes and the indegree of a movie node specifies the recommendation limit of the movie. The experiment results on Movie Lens dataset establishes scope for future scalable models and delivers competent outcomes brought in comparison with

traditional systems. Preliminary results show improvement of 9% in precision and 3% improvement in recall over traditional systems.

Keywords: Artificial Bee Colony, Hybrid Recommender Systems, Recommender System, Graph Database

NPMREC: NPM PACKAGES AND SIMILAR PROJECTS RECOMMENDATION SYSTEM

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Abstract. Node.js has a default package manager called NPM (Node Package Manager). There exists a command line client, called NPM, and an online data-base of public and paid-for private packages, known as the NPM registry. The registry is accessed via the user, and the available packages can be browsed and searched through the NPM website. Given a new project description, it is crucial to determine the most favorable NPM packages that can be used for the overall success of the project because of the reusable nature of these packages for rapid development. Though the hurdle faced by most of the developers is to select the right one from the vastly present number of NPM packages. Thus, to solve this issue, we propose a method called NPMREC known as NPM Package and Similar Projects Recommendation System. It takes a project description as an input and gives a ranked list of NPM packages as the output that can then be used to implement the project with better efficiency. We used custom-built datasets for our approach using libraries.io website. The training dataset contains two datasets, firstly, the past project dataset with 589 NPM projects/NPM modules with information about their dependencies/NPM packages; secondly, the NPM package dataset with 759 NPM packages containing the detailed information about the dependencies of these 589 NPM projects/NPM modules. The test dataset contains 105 NPM projects/NPM modules along with information about their de-pendencies.

Keywords: Node Package Manager, NPM, NPM Packages, Recommender System

ELECTRONIC WALLET PAYMENT SYSTEM IN MALAYSIA

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Abstract Today's Internet has dramatically reshaped how people make payments and transfer money. Electronic transactions are playing a vital role now in these days to shop, pay bills and money transfer, and many more. Among the electronic payment system nowadays, E-wallet is one of the most famous payment systems. Many countries have already implemented the use of electronic wallets as part of their daily purchase transaction options for their customers. The goal of the study is to recognize the overview study of E-wallet and the features of theirs and to deter-mine the different level of use and learn the best E-wallet and what the reason for practicing. Specifically, the research investigation focuses on Malaysian public university students. To achieve this, we conducted a survey to collect data from 120 participants from the

university campus. Statistics were evaluated by using SPSS software and have been documented in this survey. The results show that, among 120 respondents, received 120 valid responses. Among the 120 valid responses, about 101 (84.2%) of them are using the E-wallet payment system. The following respondents who never use e-wallet payment 19 which achieve a rate of 15.8%. The study also reveals that the new financial service has a huge effect on the use of e-wallet among bachelor students. While analyzing gender well the usage of e-wallet, man has larger satisfaction levels and also requires e-wallet often than female students. In addition, students' perceptions of their perceived use, practice, and reason had a significant impact on their confidence. For practical involvement, the use of E-wallets by most respondents confirms that there is a great potential for this payment spread in Malaysia.

Keywords: Electronic payments system; e-wallet; Boost; m-money; touch n go; Lazada; AEON; Grab pay; Vcash, WeChat; Alipay

IMPLEMENTATION OF VIOLENCE DETECTION SYSTEM USING SOFT COMPUTING APPROACH

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Abstract. Numerous techniques have been evolved for the detection of violence in human beings. Prior detection of human action can help to prevent and control suspicious and criminal activities. The offline video processing system has been used for post-action analysis. We address the violence detection trouble of humans in real-time visual surveillance such as punching, fighting, etc. The present research work proposes a novel framework that processes real-time video data received from fixed cameras installed area of interest under surveil-lance. To determine the security level, we developed a new algorithm based on the decision-making classifier to recognize the violent situation in real-time. In the view of human violence detection, the proposed work is simple and unique. The transition effects observed during violence detection is deliberated in detail. It has wide applications in the area of visual indexing, biometrics, telehealth, and human-computer interaction.

Keywords: Action Recognition, Surveillance, Computer Vision, Violence detection, Feature Extraction, Histogram, Surveillance Camera, Classifier, Hu-man-Computer interaction.

AN ALGORITHM TO DESIGN A SCALABLE CONTROL LAYER FOR A SOFTWARE-DEFINED NETWORK

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Abstract Software defined networking (SDN) architecture streamlines the contemporary networks by separating the data forwarding capabilities of the data plane from the routing capabilities of the control plane that were previously carried out in the network nodes itself. Network changes in the data plane are propagated to the control plane through an interface existing between a switch and its controller and also among the controllers. Majority of the relevant research work focuses on building a control layer that aims to minimize communication delay between a switch and its controller. Such a control layer may compromise on the data loss that occurs as a result of a link break in the network. We propose an algorithm that aims to cut down the data loss as a result of a link break, resulting in a control layer which is more failure resilient. In addition to this, we consider each controller's individual capacity to handle requests thereby, assigning it as many switches as it is capable of handling.

HYBRID MODEL WITH WORD2VECTOR IN INFORMATION RETRIEVAL RANKING

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Abstract : People have realized the importance of finding and archiving information with the computer advents for thousands of years, storing of large amount of information became possible. It is actually not related to the fetching of the documents; it informs the user on the whereabouts and existence of the documents. In this paper hybrid model has been used in which the document is classified using the SVM(Support Vector Machine) classifier, and after the condition is applied, if it is satisfied ,the extraction of the matched paragraph and the sentence is responsible for the generation of relevant answer. The knowledge base gets updated if condition doesn't match and new updated answer will be generated. Finally, the best answer is displayed after ranking by using the PSO optimization. Word2vector is applied for feature extraction. In this paper comparison of Rank SVM , Rank PSO and Rank HSVM+PSO for the implementation of IR ranking is considered. Here first SVM is used as a classifier for dividing most relevant and non-relevant results and after wards PSO is used for the optimization of the result means extraction of the best answer or document. Selection of appropriate parameters is difficult in case of simple SVM, but for the ranking of the answers it gives potential solutions. PSO is used for optimization which has global search capability and is easy to implement. Thus to optimize the ranking of document retrieval. We propose the Rank HSVM+PSO model to find the fitness function. This technique improves the performance of the system as comparative to other techniques. The result shows that the algorithm applied here improves the value of performance evaluation by 4 to 5 percent. TREC 2004 QA DATA dataset is used which contains my datasets It has a question answering track since 1999.The task was defined in each track. Retrieval of true equivalent test collection for standard retrieval is an open problem. In a retrieval test collection, the unit that is judged the document has a unique identifier.

Keywords—Information retrieval, Ranking, PSO, SVM, Machine Learning

HEURISTIC APPROACH TOWARDS COVID -19: BIG DATA ANALYTICS AND CLASSIFICATION WITH NATURAL LANGUAGE PROCESSING.

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Abstract - Data has tremendously incorporated our lifestyle. With advancements in technology and reduced internet cost, data usage has increased many folds resulting in and generation of huge heaps of unstructured data called as Big Data. This unstructured Big Data is difficult to handle using existing database management technology. We observed that genetic information related to Coronavirus is tremendously increasing every day. With implementation of Big Data analytics, these databases will be easily manageable leading to advancements in COVID-19 research. In this article, we have used HDFS system for efficient data management. In our work we classified gene classes present in complete sequence so as to quickly detect mutation in no time. To achieve this, we predicted Machine Learning models to classify gene sequences faster in-class with libraries like matplotlib to construct detailed graph of the data. We choose 3 different sequences to classify gene sequence using Natural Language processing technique of Sklearn library and tested our results using logical regression.

Keywords-Covid-19, Matplotlib, Sklearn, Natural language Processing, Classification, Logistic regression

SSDA: SLEEP SCHEDULED DATA AGGREGATION IN WIRELESS SENSOR NETWORK- BASED INTERNET OF THINGS

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Abstract: In Wireless Sensor Network (WSN)-based Internet of Things (IoT), the data transmissions from the nodes to the sink consumes a lot of energy of the sensor nodes. To add to this, the process of data aggregation in cluster-based network spends the energy resources substantially. In this paper, the process of sleep scheduling is introduced among cluster member nodes in a way that based on the pre-defined threshold value of the distance, the nodes are made to act or sleep. Eventually, the active nodes transmit their data to the Cluster Head (CH) which performs data aggregation before forwarding it to the sink. Further, the CH selection is performed by considering energy, distance and number of neighbour nodes. It is observed from the simulation analysis that the SSDA improves the stability and survival period of the network with a prodigious magnitude of 47% and 48%, as compared to the EFTA and DAFA protocols, respectively.

Keywords: Wireless Sensor Network, Data Aggregation, Cluster Head, Sleep Scheduling.

PREDICTION USING MACHINE LEARNING IN SPORTS, A CASE STUDY

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Abstract : Analysis of data is important to extract information. Algorithms are designed based on this analysis. Machine Learning is an important subset of artificial intelligence. Based on the data trends and the relationship among them algorithms are designed. Random forest and logistic regression are among the two most widely used algorithms of machine learning. Logistic regression is a probability-based algorithm. It consists of response and predictor variables. The hypothesis is based on Bernoulli's distribution. Random forest is a collection of trees. Each tree is dependent upon a random vector sampled independently. Features are randomly selected. Entropy should decrease and information gain should increase with each split. It is more robust with respect to noise. The objective of the paper is to forecast the winner of the Cricket World Cup by taking into deliberation the several factors that are necessary for deciding the result of the game. Random forest and logistic regression algorithms are applied on R to predict the final winner of the tournament. The paper concludes that Logistic Regression predicts outcome more 8.825% more accurately than Random Forest.

ANALYSIS OF VEHICLE COLLISION PREDICTION ALGORITHMS USING CNN

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Abstract In today's driven world, Vehicle Collision(VC) is one of the primary causes of injuries and fatalities on the road. The recent advances in technology help us to predict and potentially avoid such incidents for a safer and smarter traveling experience. Thus, there is also a need to evaluate, compare and improve on these technologies. This paper includes analysis of 108 convolution neural networks(CNN) created with different permutations of configurations (config.): Gaussian Mixture Model, Kaiming weights and biases, average or max pooling, dropout and additional fully connected layer, negative log likelihood loss, cross entropy loss or multi-class hinge loss, stochastic gradient descent or Adam's optimizer, and padding in convolution layers. The detection of VCs is performed upon 8,284 data points using CNN. The analysis of best and worst performing CNNs has also been presented to understand the nature of the prediction resulting due to certain pairings. The major contribution of this paper involves the proposal of a collision detection system which is highly efficient, accurate and loss-less with low computation cost in memory and time, making it implementable in applications requiring less infrastructure. It also analyses the different config. that work for this task of detecting collisions.

MULTIMODAL DEEP LEARNING ARCHITECTURE FOR IDENTIFYING VICTIMS OF ONLINE DEATH GAMES

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Abstract Online death games are a fairly recent public health concern of the modern technology driven world. Various dangerous online games like Blue Whale challenge, MOMO challenge have grown popular through social networking sites where players or victims engage in self-harming activities, often leading to death. This problem domain has not been studied in depth till date and no known technology-based solutions exist to prevent the spread of such dangerous challenges. The prime objective of our research is to explore the use of deep learning and transfer learning techniques for content analysis of user generated posts over various social networking sites; and design an early warning system which can be used by health care authorities for timely identification of victims of these games so as to avoid any fatalities. In this paper, we first discuss in detail the numerous challenges in building required technology driven solutions for this domain. Next, we propose a multimodal deep learning-based system for identifying victims of online death games, using state of the art feature generation techniques for two modalities in user's social media posts: image and text. To the best of our knowledge, our proposed system is the first technology driven public healthcare administration tool for this this domain.

Keywords: Multimodal Deep Learning, Transfer Learning, Online Death Games, Online Social Networks, User Generated Content

TS-GAN WITH POLICY GRADIENT FOR TEXT SUMMARIZATION

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Abstract: Text Summarization is a much evolving task especially since neural networks were introduced. Similarly, Generative Adversarial Networks (GANs) can be used to perform this task due to their ability to produce features or learn the whole sample distribution and produce correlated sample points. Thus, in paper, the authors exploited the characteristics of generative adversarial networks (GANs) for the abstractive text summarization task. The proposed generative adversarial model has three components: a generator which encodes the input sentences into much shorter representations; a discriminator which enforces generator to create understandable summaries and a second discriminator which exerts upon generator to curb the output co-related to the input. The generator is optimized using Policy Gradient method, converting the problem into reinforcement learning. The ROUGE scores achieved by the model are as follows: R-1: 41.52, R-2: 16.20, R-L 37.21.

Keywords: Abstractive Text Summarization, Generative Adversarial Network, Convolutional Neural Network.

ENERGY EFFICIENT HETEROGENEOUS ROUTING PROTOCOLS FOR CLUSTER BASED HETEROGENEOUS WIRELESS SENSOR NETWORK (HETWSN) – STRATEGIES AND CHALLENGES: A REVIEW

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Abstract : The displacement of artwork from one part of the world to another is very common in highly connected world. In this paper our study is limited to the images of Buddha. The statues of Buddha in different part of the world are having some distinct features, which can be used to classify them. We have made a sincere attempt to recognize and classify the Buddha statues of Borobudur, Indonesia, owing to its remarkable and significant features. A machine learning based approach has been applied to do the same. A face recognition system is also being used, which extracts the features of a statue using machine learning libraries. A two-step approach has been performed to identify the face: face encoding using deep neural networks and classification using Support Vector Machines.

Keywords: Buddha statues, Borobudur, Machine-learning, Classification, Support vector technique, Deep neural network, OpenCV, Face recognition

RETRIEVAL MECHANISMS OF DATA LINKED TO VIRTUAL SERVERS USING META-HEURISTIC TECHNIQUE

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Abstract. Sometimes analysis of large scale of data in the current generation may support virtual environment towards small to medium ICT based business. The implementation of virtual server, along with the associated technologies in general can reduce the processing costs, hardware costs as well as evaluation and optimization of large queries in multi query environments. As the processing capabilities while processing queries are major issues, the process may acquire more time as it may not optimize the concerned data in the whole database in the stipulated time. Practically, it is difficult to process erroneous data with virtual link. To overcome this difficulty, canonicalization concept may be adopted to increase the performance of sustained data along with safe querying. Initially, it can be, requiring finding the similarities of the given query with the distinct database. After that it is essential to generalize the symbols linked with query stringing and seeking to enhance the system performance. This would result in better accuracy with limited query processing time, and minimum computation cost. In this context, it has been thought of analysing the performance of query plans linked with the database associated with virtual servers using meta-heuristic approach.

Keywords: Query term, Metaheuristic, Canonical cover, Tuple, Pheromone, Semantic query, Cloud

MACHINE LEARNING APPROACHES FOR PSYCHOLOGICAL RESEARCH REVIEW

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Abstract With a broad adaptation of artificial intelligence tools in recent years, machine learning methods have gained a significant popularity in various aspects of business, science and individuals life. This is why, we proposed a research question on possibilities and threats that machine learning tools may bring to a psychological studies. We analyzed current state of art to provide contemporary adaptations and scope of implementation of ML into psychological research. Then we defined core pros and cons of these tools deployment. Despite existing challenges, ML seems to be a promising solution for improving psychological studies in areas of diagnostic, prognosis and treatment.

Keywords: machine learning, artificial intelligence, psychology

TRANSFORMATION OF HIGHER EDUCATIONAL INSTITUTIONS FROM DISTANCE LEARNING TO THE E- LEARNING 5.0: AN ANALYSIS

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Abstract: Considering the present pandemic situation, it is intended to focus on the issues associated with remote teaching supported by information telecommunication technology tools. In such a scenario, the introduction part represents the legal, organizational as well as technical aspects of remote teaching implementation at the Jan Wyzykowski University, Polkowice, Poland. Similarly, the portion of the literature review emphasizes specific e-learning methods and tools as well as e-learning solutions 3.0, 4.0, 5.0. The associated research queries are formulated in the methodological part, along with the proposed research method. The findings, as well as outcomes of the research, are basically the analysis of distance learning as well as the conceptual framework of the e-learning 5.0 system. Moreover, the overall conceptualizations and considerations are prioritized in future work and conclusions.

Keywords: distance teaching, distance learning, e-learning 3.0., 4.0., 5.0, IoT