DRIVER DROWSINESS DETECTION AND ALERT SYSTEM BY USING MACHINE LEARNING TECHNIQUES

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with Specialization

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

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Build New World

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EXTERNAL EXAMINER

ABSTRACT

Many of the accidents occur due to drowsiness of drivers. It is one of the critical causes of roadways accidents now-a-days. Latest statistics say that many of the accidents were caused because of drowsiness of drivers. Vehicle accidents due to drowsiness in drivers are causing death to thousands of lives. More than 30% accidents occur due to drowsiness. For the prevention of this, a system is required which detects the drowsiness and alerts the driver which saves the life. In this project, we present a scheme for driver drowsiness detection. In this, the driver is continuously monitored through webcam. This model uses image processing techniques which mainly focuses on face and eyes of the driver. The model extract the drivers face and predicts the blinking of eye from eye region. We use an algorithm to track and analyze drivers face and eyes to measure Perclos. If the blinking rate is high then the system alerts the driver with a sound.

Keywords — Drowsiness, Distraction, Eye detection, Eye Tracking, Face Detection, Perclos

LOAN DEFAULT RISK ANALYSIS

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with Specialization

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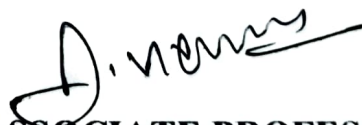
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ABSTRACT

In today's dynamic financial landscape, the accurate prediction of loan approval is of paramount importance for both lenders and borrowers alike. This study presents a comprehensive analysis of loan prediction using machine learning algorithms, aimed at empowering financial institutions with reliable decision-making tools while fostering accessibility to credit for individuals.

Precise credit risk assessment also known as loan default prediction is crucial to the functioning of lending institutions. Traditional credit score models are constructed with demographic characteristics, historical payment data, credit bureau data and application data. In online mobile based lending, borrower's fraudulent risk is higher. Hence, credit risk models based on machine learning algorithms provide a higher level of accuracy in predicting default.

The main objective of this project is to predict loan default by applying machine learning algorithms. The proposed methodology involves data collection , data pre-processing , data analysis , model selection and performance evaluation. This project takes data of previous customers to whom on a set of parameters loan were approved. The machine learning model is then trained on that record to get accurate results. The main machine learning algorithms applied are logistic regressions, naïve bayes and decision trees. The performance of the machine learningmodels are then compared using performance metrics and the best machine learning algorithm is selected to predict the loan default.

ENCRYPTED NETWORK TRAFFIC CLASSIFICATION USING DEEP & PARALLEL N-I-N MODELS

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with Specialization

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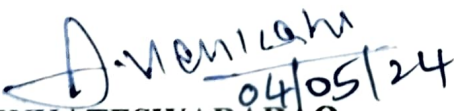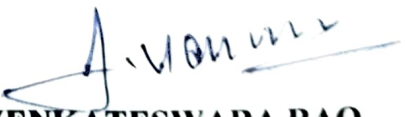
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ABSTRACT

Network traffic classification aims to recognize different application or traffic types by analyzing received data packets. This paper presents a neural network model with deep and parallel network-in-network (NIN) structures for classifying encrypted network traffic. Comparing with standard convolutional neural networks (CNN), NIN adopts a micro network after each convolution layer to enhance local modeling. Besides, NIN utilizes a global average pooling instead of traditional fully connected layers before final classification, which reduces the number of model parameters significantly. In our proposed method, deep NIN models with multiple MLP convolutional layers are built to map fixed-length packet vectors towards application or traffic labels. Furthermore, a parallel decision strategy of building two sub-networks to process packet header and packet body separately is designed considering that they may carry different kinds of clues for classification. The results of our experiments on the "ISCX VPN-nonVPN" encrypted traffic dataset show that NIN models can achieve a better balance between classification accuracy and model complexity than conventional CNNs. The parallel decision strategy can further improve the accuracy of using single NIN model for encrypted network traffic Classification..

Keywords : Network Traffic Classification, Convolutional Neural Network, Network-In-Network, Data packet.

A project report on

DIABETES PREDICTION USING RANDOM FOREST

Submitted in partial fulfilment of the requirements for award of the degree of

BACHELOR OF TECHNOLOGY

In

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This is to certify that the project report entitled "**Diabetes Prediction Using Random Forest**" submitted by P.SIRISHA (20U41A4226), A.V.V.S.TANIYA (20U41A4224), N.S.N.RAHI (20U41A4234), S.VENKAT SAI (20U41A4244). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING With Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

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ABSTRACT

Diabetes is an illness caused because of high glucose level in a human body. Diabetes should not be ignored if it is untreated then Diabetes may cause some major issues in a person like: heart related problems, kidney problem, blood pressure, eye damage and it can also affect other organs of human body. Diabetes can be controlled if it is predicted carlier. To achieve this goal this project work we will do early prediction of Diabetes in a human body or a patient for a higher accuracy through applying, Various Machine Learning Techniques.

Machine learning techniques Provide better result for prediction by constructing models from datasets collected from patients. In this work we will use Machine Learning Classification and ensemble techniques on a dataset to predict diabetes. Which are KMean clustering, K- Nearest Neighbor (KNN), Naïve bayes, Linear Regression (LR) and Random Forest (RF). The accuracy is different for every model when compared to other models. The Project work gives the accurate or higher accuracy model shows that the model is capable of predicting diabetes effectively.

Overall, this study underscores the potential of the Random Forest tool as a reliable and accessible method for predictive modeling in healthcare. By demonstrating its effectiveness in predicting diabetes risk, we highlight the broader applicability of machine learning algorithms in addressing complex health challenges and improving patient outcomes.

Keywords: Diabetes, Random Forest algorithm, Prediction, Healthcare, Kaggle dataset, Machine Learning, Risk Assessment.

A SMART SOLUTION FOR AUTOMATED PHISHING URL DETECTION USING MACHINE LEARNING

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with

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ABSTRACT

In recent years, advancements in Internet and cloud technologies have led to a significant increase in electronic trading in which consumers make online purchases and transactions. This growth leads to unauthorized access to users' sensitive information and damages the resources of an enterprise. Phishing is one of the familiar attacks that trick users to access malicious content and gain their information. In terms of website interface and uniform resource locator (URL), most phishing webpages look identical to the actual webpages. Various strategies for detecting phishing websites, such as blacklist, heuristic, Etc., have been suggested.

As technology is growing, phishing methods have started to progress briskly and this should be avoided by making use of anti-phishing techniques to detect phishing. Machine learning is a authoritative tool that can be used to aim against phishing assaults. There are several methods or approaches to identify phishing websites. The machine learning approaches to detect phishing websites have been proposed earlier and have been implemented. The project is implemented using 4 machine learning supervised classification models. The four classification models are K-Nearest Neighbor, Kernel Support vector machine, decision tree and random forest classifier. It was established that the Random forest classifier provides best accuracy for the selected dataset and gives an accuracy score of 96.82%.

A project report on

A Driving Decision Strategy(DDS)Based on machine learning for an autonomous vehicle

Submitted in partial fulfilment of the requirements for award of the degree of

BACHELOR OF TECHNOLOGY

In

CSM&DS

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EXTERNAL EXAMINER

ABSTRACT

A current independent vehicle decides its driving system by thinking about just outer variables (People on foot, street conditions, and so forth.) without considering the inside state of the vehicle. To take care of the issue, this paper proposes "A Driving Decision Strategy(DDS) Based on AI for a self-governing vehicle" which decides the ideal system of a self-governing vehicle by breaking down not just the outer variables, yet additionally the inside elements of the vehicle (consumable conditions, RPM levels and so on. The DDS learns a hereditary calculation utilizing sensor information from vehicles put away in the cloud and decides the ideal driving procedure of an self-ruling vehicle. This paper contrasted the DDS and MLP what's more, RF neural system models to approve the DDS. In the analyze, the DDS had a misfortune rate around 5% lower than existing vehicle entryways and the DDS decided RPM, speed, directing point and path changes 40% quicker than the MLP also, 22% quicker than the RF.

Enhanced Decision Support System for Road Accident Severity Forecast

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with Specialization

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CERTIFICATE

This is to certify that the project report entitled "**ENHANCED DECISION SUPPORT SYSTEM FOR ROAD ACCIDENT SEVERITY FORECAST**" is being submitted by P. JYOSHNA (20U41A4215), M.M. PRATHYUSHA (20U41A4227), P. RAVI KIRAN REDDY (20U41A4232), K. MOHAN KUMAR (20U41A4232). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in **COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING,** Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

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EXTERNAL EXAMINER

II

ABSTRACT

Road accidents constitute a substantial threat to global public safety, necessitating comprehensive efforts to reduce their severity. The suggested Decision Support System combines powerful machine learning algorithms, historical accident data, real-time traffic and weather information, and geographical elements to effectively anticipate the severity of road accidents. The Decision Support System provides actionable information for policymakers, law enforcement agencies, and emergency responders by utilizing a vast dataset and cutting-edge predictive models. Through comprehensive evaluation and validation utilizing real-world accident data, the effectiveness and dependability of the proposed Decision support systems are displayed, emphasizing their potential to improve road safety initiatives and save lives. The research findings help to expand decision support systems in the field of road safety, paving the door for proactive measures to reduce accident severity and improve overall traffic management tactics.

Keywords: Road safety decision-making, road accident prediction, statistical parametric models, machine learning

VISUAL SPEECH RECOGNITION USING LIP-NET

*A Project Report submitted in partial fulfilment of the
requirements for the award of the Degree of*

BACHELOR OF TECHNOLOGY

IN

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EXTERNAL EXAMINER

ABSTRACT

LipNet stands as a cutting-edge deep learning framework meticulously crafted for the domain of lipreading, exhibiting a remarkable capacity to discern and comprehend spoken language exclusively through the analysis of lip movements, free from any reliance on audio input. This sophisticated system harnesses the power of Long Short-Term Memory (LSTM) networks and Convolutional Neural Networks (CNNs) to adeptly capture the temporal intricacies inherent in spoken language and distill pertinent features from lip images. By seamlessly integrating LSTM and CNN architectures, LipNet emerges as a formidable tool with a broad spectrum of applications.

Primarily developed to cater to the needs of the hearing-impaired, LipNet transcends its initial purpose and extends its impact to areas such as augmenting audio-visual speech recognition, elevating human-computer interaction, and facilitating precise lip synchronization within the entertainment industry. Furthermore, the versatility of LipNet becomes apparent as it unveils potential applications in privacy and security domains, particularly in surveillance and voice-activated biometric systems. This not only positions LipNet as a trailblazing technology but also underscores its potential as a catalyst for future advancements in research and development.

The core functionalities of LipNet are rooted in the seamless interplay of LSTM networks and CNNs, coupled with the essential mechanisms of Back Propagation, Feed Forward, Neural Network, and implemented through frameworks like Tensor Flow and Keras. This intricate amalgamation of technologies empowers LipNet to navigate the nuanced landscape of lipreading with finesse, presenting a robust foundation for exploration, innovation, and the realization of its promise in diverse fields of study and application.

PARKINSON'S DISEASE DETECTION USING DEEP LEARNING

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

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ABSTRACT

Parkinson's disease is a neurodegenerative disorder that affects millions of people worldwide. Parkinson's disease (PD) affects 60% of persons over age 50. The patients of Parkinson's disease struggle with speech impairment and movement issues, which makes it difficult for them to travel for appointments for treatment and monitoring. Early discovery of PD enables treatment, allowing patients to live normal lives. The necessity to identify PD early, remotely, and correctly is highlighted by the world's ageing population. In recent years, machine learning techniques have shown great potential in the early detection and diagnosis of Parkinson's disease. In this project, we propose a novel approach for the detection of Parkinson's disease using machine learning techniques and Xception architecture. Specifically, we focus on the detection of Parkinson's disease from spiral and wave drawings, which are commonly used in clinical practice as part of the diagnosis process. We collected a dataset of spiral and wave drawings from individuals with and without Parkinson's disease. We preprocessed the data and used Xception architecture to train our machine learning models. Our models achieved impressive performance, with a training accuracy of 95.34% and a validation accuracy of 93.00% for the detection of Parkinson's disease from spiral drawings, and a training accuracy of 93.34% and a validation accuracy of 86.00% for the detection of Parkinson's disease from wave drawings. Our results demonstrate the potential of machine learning and Xception architecture in the early detection and diagnosis of Parkinson's disease. Our approach has the potential to improve the accuracy and efficiency of Parkinson's disease diagnosis, leading to better patient outcomes and quality of life.

Keywords: Xception | CNN model architecture, using basic Machine learning (ML) & Deep learning(DL) , libraries such as Keras, sklearn, PIL, pandas, numpy ,matplotlib and TensorFlow.

AMERICAN SIGN LANGUAGE RECOGNITION SYSTEM

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with Specialization

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

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DEPARTMENT OF

COMPUTER SCIENCE AND ENGINEERING(AI&ML)

CERTIFICATE

This is to certify that the project report entitled **"American sign Language Recognition System"** submitted by Maradana.Indu (20U41A4202), Kannuru surya sathvika (20U41A4222),Tanakala.Raeshmasree(20U41A4228),KVDN.Sai kiran (20U41A4236). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology** in **CSE(AI&ML)**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

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EXTERNAL EXAMINER

ABSTRACT

This project aims to revolutionize communication accessibility for the deaf and hard-of-hearing community by developing an innovative American Sign Language (ASL) recognition system. Leveraging deep learning techniques and advanced machine learning libraries such as TensorFlow and Keras, the system targets an impressive 99% accuracy rate in gesture recognition, significantly enhancing real-time translation of ASL gestures into text and speech. Key objectives include leveraging the 'grassknoted/asl-alphabet' Kaggle dataset for data collection and preparation, training a Convolutional Neural Network (CNN) capable of recognizing 29 different hand gestures including alphabet signs and additional gestures like 'delete', 'nothing', and 'space'. Deep learning frameworks TensorFlow and Keras are highlighted for model development, with sklearn facilitating comprehensive model evaluation metrics. The proposed timeline spans ten weeks, covering data collection, model development, testing, interface integration, and project wrap-up.Ultimately, the successful implementation of this project promises to bridge the communication gap for the deaf and hard-of-hearing community, with potential for significant social impact and paving the way for future advancements in gesture recognition and assistive technologies.

Keywords : Deep learning ,Machine learning ,Tensorflow ,Keras ,CNN.

A STUDY OF BLOCKCHAIN TECHNOLOGY IN FARMERS PORTAL

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING with Specialization

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

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EXTERNAL EXAMINER

II

ABSTRACT

Blockchain is a method in which a confirmation of a transaction is kept by means of a cryptocurrency. The record is maintained transversely, linking several computers in a peer to peer network. Contracts, transactions, and the records of them define the economic system of a country. They set boundaries and provide security to the assets. Considering the features of blockchain such as immutability and maintaining the footage of transaction details, this paper highlights the usage of blockchain technology with farmer's portal that keep the footage of selling and buying information of crops. The proposed solution uses the python as a programming language in integration with the blockchain system that will benefit the farmers or vendors and individuals by preserving the contract of trade. An interface for the farmers is designed using a python programming language in addition with blockchain technology, which is used to store the information related to seller, buyer, selling and buying an item and total value transacted.

Keywords : **Peer-to-Peer Networks, Smart Contracts, Supply Chain, Digital Identity, Agricultural Data.**

REAL TIME OBJECT DETECTION USING OPENCV

*A project Report submitted in partial fulfilment of the
requirements for award of the Degree of*
BACHELOR OF TECHNOLOGY
In

COMPUTER SCIENCE AND ENGINEERING
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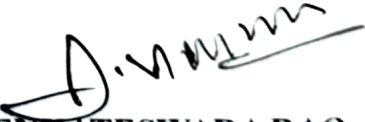
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(2020-2024)

DEPARTMENT OF

COMPUTER SCIENCE AND ENGINEERING (AI&ML)

CERTIFICATE

This is to certify that the project report entitled **"REAL TIME OBJECT DETECTION USING OPENCV"** submitted by K.V.K.RAMSAI (20U41A4201), M.L.PRASANNA(20U41A4230),ARYAN(20U41A4241),G.SANTOSH(21U45A420 1).Inpartial fulfilment of the requirements for award of the Degree of **Bachelor of Technology** in **CSE(AI&ML)**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

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EXTERNAL EXAMINER

ABSTRACT

Real-time object detection plays a pivotal role in various computer vision applications, ranging from surveillance to autonomous vehicles. In this project, we present a Python script utilizing OpenCV and SSD MobileNet for real-time object detection using a webcam feed as input. The script leverages pre-trained models and a class names file to recognize and label objects in real-time. Key steps include setting thresholds for object detection and non-maximum suppression, initializing the webcam input, loading class names, configuring the SSD MobileNet model, performing real-time detection, and displaying the results. The script provides a seamless interface for users to detect objects in their surroundings efficiently. This project demonstrates the practical application of deep learning techniques in real-world scenarios, fostering advancements in computer vision technology.

Keywords: Real-time object detection, OpenCV, SSD MobileNet, Python, Webcam feed, Pretrained models, Computer vision, Deep learning, Surveillance, Autonomous vehicles.