Literature Survey

PNT2022TMID08044

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S.No	TITLE	PROPOSED WORK	TOOLS USED/ ALGORITHM	TECHNOLOGY	ADVANTAGES/ DISADVANTAGES
1	Early Detection of Diabetic Retinopathy by Using Deep Learning Neural Network	To detect diabetic retinopathy on the fundus images by using deep learning neural network .Dataset **MESSIDOR** database,contains 1200 images.After filteration it classified into 2 types (i.e)normal images and then exudates images.On the training and testing session, the 580 mixed of exudates and normal fundus images were divided into 2 sets which is train_x0002_ing set and testing set. The result of the training and testing set were merged into a confusion matrix. The result for this project shows that the accuracy of the **CNN** for training and testing set was 99.3% and 88.3% respectively..	• CNN • MATLAB • MESSIDOR DATABASE	ARTIFICIAL INTELLIGENCE	**DISADVANTAGES** • The accuracy is not 100% ,because of the CNN was insufficient of the data to train the neural.This is the main drawback of this. • When exudates were too small,it is difficult for CNN to detect the exudates on the images. **ADVANTAGES** • Eventhough the accuracy is not 100%,it can be considered as a success CNN since the accuracy is higher than 85%.(CNN accuracy is 88.3%)

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2	Deep learning for diabetic retinopathy detection and classification based on fundus images	Diabetic Retinopathy is a retina disease caused by diabetes mellitus and it leads blindness.Early detection helps us to delay or avoid vision deterioration and vision loss. Many artificial-intelligence-powered methods and Deep learning methods have been proposed by the research community for the detection and classification of diabetic retinopathy on fundus retina images.By this way we can detect the fundus images.	• ANN &CNN • UNet • Generative Adversarial Networks • Transfer Learning and Ensemble Learning • Interpretable DL approaches • Mild DR misclassification • Diabetic Retinopathy Datasets(Kaggle EyePACS,Messidor & messidor 2,IDRiD,DDR,Kaggle APTOS 2019,E-optha,DiaRetDB1, DRiDB and other datasets)	ARTIFICIAL INTELLIGENCE	**ADVANTAGES** • .Early detection helps us to delay or avoid vision deterioration and vision loss. **DISADVANTAGES** • Although deep learning has paved the way for more accurate diagnosis and treatment, further improvements are still necessary regarding performance, interpretability and trustworthiness from ophthalmologists.

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3	Deep Learning Techniques for Diabetic Retinopathy Classification	Diabetic Retinopathy is a retina disease caused by diabetes mellitus and it leads to blindness . Early detection helps us to delay or avoid vision deterioration and vision loss. Machine learning-based medical image analysis has proven competency in assessing retinal fundus images, and the utilization of deep learning algorithms has aided the early diagnosis of Diabetic Retinopathy (DR).	• Classification • Supervised Learning Self -supervised Learning [1. Binary Classification 2.Multi-class Classification] • DATASETS(DRIVE, EyePACS, • APTOS , STARE, DIARETDB , HEIMED, • ROC , Messidor, e-ophtha , DDR , and • RFMiD) • SVM & CNN	ARTIFICIAL INTELLIGENCE	**ADVANTAGES** • It mainly helps us to prevent from the vision loss. **DISADVANTAGES** • .The main issue is the manual diagnosis that has to occur after screening, which is typically a lengthy process prone to ophthalmologists' bias. • The main issue involved with DR detection is that the manual diagnosis process is very time,money, and effort consuming and involves an ophthalmologist's examination of eye retinal fundus images. .

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4	Fundus images analysis using deep features for detection of exudates, haemorrhages and micro aneurysms	The focus of this paper highlights the prevalence of Deep learning techniques for Diabetes Retinopathy classification and its impact on classification results	• Supervised learning • Self supervised learning • Transformers • CNN algorithm **DATASET:** DRIVE , EyePACS, APTOS, STARE, DIARETDB, HEIMED, ROC, Messidor e-ophtha, DDR and RFMiD	ARTIFICIAL INTELLIGENCE	**ADVANTAGES** • It is used to diagnosis of microneurysms, haemmorages, soft and hard exudates. • Achieve accuracy rate of 81.7% in training the model **DISADVANTAGES** • Private datasets are usually small and typically obtained from participating labs that collaborate with the researchers and shared

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5	Deep Learning Fundus Image Analysis for Diabetic Retinopathy and Macular Edema Grading	Disease that can cause visible microvascular complications such as diabetic retinopathy and macular edema in the human eye retina, the images of which are today used for manual disease screening and diagnosis. This labor-intensive task could greatly beneft from automatic detection using deep learning technique. Here we present a deep learning system that identifes referable diabetic retinopathy comparably or better than manual disease screening and diagnosis.	• Binary Classifcation tasks (NRDR/RDR and NRDME/RDME) • Neural Network Approaches • Ensemble Approaches • MESSIDOR dataset	ARTIFICIAL INTELLIGENCE, MACHINE LEARNING AND DEEP LEARNING	**ADVANTAGES** **DISADVANTAGES**

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6	Sensor based Smart Automated Gas Leakage Detection and Prevention System	Liquefied petroleum gas (LPG) is commonly used for heating, cooking, automotive power, and various other uses worldwide. LPG is a particularly flammable gas, and LPG leaks cause significant incidents. The cause may arise from improper installation to the use of faulty gas cylinders.	• Arduino Uno R3 • MQ-2 Smoke Gas Sensor • Ublox NEO-6M GPS Module, • SIM800L QuadBand GPRS-GSM Module, • Buzzer • LCD Display • LED (5mm) • Transistor	Internet of Things	**ADVANTAGES** **DISADVANTAGES**

THANK YOU