DEEP LEARNING FUNDUS IMAGE ANALYSIS FOR EARLY DETECTION OF DIABETIC RETINOPATHY

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LITERATURE SURVEY

S.NO	PAPER	AUTHOR	YEAR	METHOD AND ALGORITHM	ACCURACY
1.	Diagnostic assessment of deep learning algorithms for diabetic retinopathy screening	Tao Li, Yingqi Gao, Kai Wang, Song Guo, Hanruo Liu, Hong Kang	2019	They collected 13,673 fundus images from 9598 patients. These images were divided into six classes by seven graders according to image quality and DR level. Moreover, 757 images with DR were selected to annotate four types of DR-related lesions. Finally, we evaluated state-of-the-art deep learning algorithms on collected images, including image classification, semantic segmentation and object detection.	82%
2.	Diabetic Retinopathy Diagnosis Through Computer-Aided Fundus Image Analysis	Jaskirat Kaur, Deepti Mittal & Ruchi Singla	2021	Computer-aided diagnostic assistance to an expert plays a vital part by aiding in the daily tasks of diagnosis of DR. As a result, numerous methods, such as morphology and thresholding, filtering, supervised methods, hybrid methods are being used to design such systems for the qualitative examination of retinal fundus images	97.38%

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3.	Deep Learning Techniques for Diabetic Retinopathy Classification	Mohammad Z. Atwany, Abdulwahab H. Sahyoun, Mohammad Yaqub	2022	Diabetic Retinopathy classification can be categorized to either binary classification which aims to detect the presence or absence of DR and multi-class classification, which determines the exact stage of DR. Consequently, Supervised, Self-supervised, and Transformer methods were developed to focus on lesion-based classification.	96.3%
4.	Deep learning architecture based on segmented fundus image features for classification of diabetic retinopathy	Sraddha Das, Krity Kharbanda, Suchetha M, Rajiv Raman, Edwin Dhas D	2021	They have used a convolution neural network (CNN) to train the classifier for performing classification. The CNN, constructed for classification, comprises a combination of squeeze and excitation and bottleneck layers, one for each class, and a convolution and pooling layer architecture for classification between the	98.7%

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				two classes. For the performance evaluation of the proposed algorithm, They use the dataset DIARETDB1, comprised of fundus scans of both affected and normal retinas.	
5.	Design an Early Detection and Classification for Diabetic Retinopathy by Deep Feature Extraction based Convolution Neural Network	Akey Sungheetha Kumarasuvamy, Rajesh Sharma Rajendran	2021	They proposed research work extracts the features by incorporating deep networks through convolution neural networks (CNN). The micro aneurysm may be seen in the early stages of the transformation from normal to sick condition on the images for mild DR.The level of severity of the diabetes condition may be classified by using the confusion matrix detectionresults.	95.95%
6.	Deep learning algorithms for detection of diabetic retinopathy in retinal fundus photographs: A systematic review and meta-analysis	Md Mohaimenul Islam, Hsuan-Chia Yang, Tahmina Nasrin Poly, Wen-Shan Jian, Yu-Chuan	2020	A systematic review with a meta-analysis of relevant studies was performed to quantify the performance of DL algorithms to detect DR.The findings of their study showed that DL-algorithms had high sensitivity and specificity for detecting referable DR from retinal fundus photographs.	97%