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| S.NO | TITLE AND AUTHOR | YEAR AND PUBLICATIONS | METHODOLOGY AND ALGORITHM | ADVANTAGES | DRAWBACKS |
| 1 | Early dedection of diabetic retinopathy based on deep learning and ultra wide field fundus images | 21 January 2021 | In this study, we present a diabetic retinopathy detection system based on ultra-wide-field fundus photography and deep learning. In experiments, we show that the use of early treatment diabetic retinopathy study 7-standard field image extracted from ultra-wide-field fundus photography outperforms that of the optic disc and macula centered image in a statistical sense. | In ths study we configured a deep learning system for DR detecting using the ETDRS 7SE image extracted from the UWF fundus image | Although the UWF imagiing captured area the for periphery of the retina in UWF images may contain eyelids and eyelashes |
| 2 | Deep learning for diabetic retinopathy detection and classification based on fundus images | August 2021 | This review article provides a thorough analysis of the use of deep learning methods at the various steps of the diabetic retinopathy detection pipeline based on fundus images. | The intrest in applying deep learning in detecting diabetic retinopathy has increased during the past years and as several DL systems evolve and become integrated ntothe clinical practice they will enable the clinicians to treat the patients in need more effectively and efficiently | The progress from traditional machine learning approaches to deep learning oncevalthough it has improved the performance of such analyses has also been accompanied by a lack of explanability and transparency. |
| 3 | Topic: Deep Learning Fundus Image Analysis for Diabetic Retinopathy and Macular Edema Grading | 24 July 2019 | Here we present a deep learning system that identifies referable diabetic retinopathy comparably or better than presented in the previous studies, although we use only a small fraction of images (<1/4) in training but are aided with higher image resolutions. | Diabetes is a globally prevalent diseases 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. | Deep learning system could increase the cost-effectiveness of screening and diagnosis while attaining higher than recommended |
| 4 | Early dedection of diabetic retinopathy by using deep learning neural network | October 2018 | This project presents a method to detect diabetic retinopathy on the fundus images by using deep learning neural network. Alexnet Convolution Neural Network (CNN) has been used in the project to ease the process of neural learning. | Alexnet Convolution Neural network (CNN)has been used in the project to ease the process of neural learning | It need some mprovement to make the accuracy of the project hearest to 100% |
| 5 | DEEP Learning Fundus image analysis for Diabetic Retiopathy | March 2,2018 | This paper reviews and analyzes state-of-the-art deep learning methods in supervised, self-supervised, and Vision Transformer setups, proposing retinal fundus image classification and detection | Adjudication reduces the errors in DR grading .A small set of adjudicated DR grades allows substantial improvements in algorithm performance. | The resulting algorithm performance was on par with that of individual U.SBoard-Certified ophthalmologists and retinal specialists |
| 6 | Improved Automated Detection of Diabetic Retinopathy on a publicly Avalable Dataset Through Integration of deep learnng | October 2016 | To compare performance of a deep-learning enhanced algorithm for automated detection of diabetic retinopathy (DR), to the previously published performance of that algorithm, the Iowa Detection Program (IDP)–without deep learning components–on the same publicly available set of fundus images and previously reported consensus reference standard set, by three US Board certified retinal specialists. | Deep-learning enhanced system for automated detection of DR thus have the potential to improve the efficiency and accessibility of DR screening and thereby to prevent visual loss and blindness from this devastating disease. | A deep-learning enhanced algorithm for the automated detection of DR achieves significantly better performance than a previously reported,otherwise essentially identical algorithm that does not employ deep learning. |
| 7 | Diabetic retinal fundus images:Preprocessing and features extraction for early detection of diabetic retinopathy | 2017 | In this paper, pre-processing of raw retinal fundus images are performed using extraction of green channel, histogram equalization, image enhancement and resizing techniques. | It is observed that exudate area is the best feature out of all the features which can primarily be used for diabetic detection followed by blood vessels and other features ,which suggests us that exudate is one of the major features responsible for diabetic retinopathy. | The raw retinal fundus images are very hard to process by machine learning algorithms. |
| 8 | Detection of diabetic retinopathy using deep learning methodology | 2021 | The proposed method is accomplished through various steps: Data Collection, Preprocessing, Augmentation and modelling. Our proposed model achieved 90% of accuracy. The Regression model was also employed, manifested up an accuracy of 78%. | The present work considers a deep learning methodology specifically a Densely Connected Convolutional Network DenseNet-169,which is applied for the early detection of diabetic retinopathy. | The earllydetection ocan deter the contingency of complete and permanent blindness thus requires an efficient screenimgsystem. |
| 9 | Automated detection of diabetic retinopathy using deep learning | 2018 | In this paper, we demonstrate the use of convolutional neural networks (CNNs) on color fundus images for the recognition task of diabetic retinopathy staging. Our network models achieved test metric performance comparable to baseline literature results, with validation sensitivity of 95%. | Our network models achieved test metric performance comparable to baseline literature results with validation sensitivity of 95%. | Early detection of DR condition is critical for good prognosis. |