|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.  NO | TOPIC & AUTHOR | YEAR &  PUBLICATION | METHODOLOGY | ADVANTAGE | DRAWBACK |
| 1 | Deep Learning Fundus Image Analysis for Diabetic Retinopathy and Macular Edema Grading  [Jaakko Sahlsten](file:///C:\Users\LENOVO\Documents\litreature%20survey.docx#auth-Jaakko-Sahlsten),  · [Joel Jaskari](file:///C:\Users\LENOVO\Documents\litreature%20survey.docx#auth-Joel-Jaskari), | [24 July 2019](file:///C:\Users\LENOVO\Documents\litreature%20survey.docx#article-info)  [*Scientific Reports*](https://www.nature.com/srep) | Systematic computation | It is accurate | The image grading reference could unavoidably include grader biases that can result in decreased generalization performance of the model |
| 2 | Development and Validation of a Deep Learning Algorithm for Detection of Diabetic Retinopathy in Retinal Fundus Photographs  Varun Gulshan, Lily Peng, | December 13, 2016,  JAMA | Deep learning algorithms | High sensitivity and specificity for detecting referable diabetic retinopathy | Time consuming |
| 3 | Early detection of diabetic retinopathy based on deep learning and ultra-wide-field fundus images [Hae Min Kang](file:///C:\Users\LENOVO\Documents\litreature%20survey.docx#auth-Hae_Min-Kang), [Dawoon Leem](file:///C:\Users\LENOVO\Documents\litreature%20survey.docx#auth-Dawoon-Leem), | [21 January 2021](file:///C:\Users\LENOVO\Documents\litreature%20survey.docx#article-info)    [*ScientificReports*](https://www.nature.com/srep) | Single-field fundus photography | As for performance indicators, we employ the accuracy, AUC, sensitivity, and specificity. | Limitations of our approach is that we set an ROI for the DR detection to the ETDRS 7SF among the entire captured area of the retina in the UWF photography. |
| 4 | Using a Deep Learning Algorithm and Integrated Gradients Explanation to Assist Grading for Diabetic Retinopathy  Ankur Taly,  Rory Sayres, PhD | December 13, 2018    Ophthalmology | International Clinical Diabetic Retinopathy | Accuracy, speed, and confidence of readers | Although time spent on task increased overall, we saw evidence that the increase in grading time diminished |
| 5 | Automated Identification of Diabetic Retinopathy Using Deep Learning  Rishab Gargeya  Theodore Leng.MS ,MD | March 27, 2017    Ophthalmology | Deep learning algorithm | An algorithm on a global basis could reduce drastically the rate of vision loss | Fundus photographs have a low sensitivity and specificity |
| 6 | Deep learning for diabetic retinopathy detection and classification based on fundus images  Nikos Tsiknakis, Dimitris Theodoropoulos | 7 May 2021  Google Scholar | Kaggle EyePACS | Increase of computational resources and capabilities | Perform poorly under typical practical situations |
| 7 | Diagnosis of Diabetic Retinopathy through Retinal Fundus Images and 3D Convolutional Neural Networks  An Bin Tufail  Inam Ullah | 17 Nov 2021  Hindawi | 3D-CNN architectures | Combined augmentation methods to be the best while the performance of model | Consumes more time ,cost to manufacture |