

# **DETECTION OF DIABETIC RETINOPATHY USING CNN**

## **ABSTRACT**

Diabetic retinopathy is a diabetes complication that affects eyes. It's caused by damage to the blood vessels of the light-sensitive tissue at the back of the eye (retina). Diabetic retinopathy affects up to 80 percent of those who have had diabetes for 20 years or more. At least 90% of new cases could be reduced with proper treatment and monitoring of the eyes. The longer a person has diabetes, the higher his or her chances of developing diabetic retinopathy. Especially for those patients in early phase, if DR can be found and treated immediately, the deteriorated process can be well controlled and delayed. At the same time, the effect of manual interpretation is extremely dependent on the clinician's experience. Misdiagnosis often occurs due to the lack of experience of medical doctors.

This paper implements an automatic diagnosis of DR using fundus images classification. We work on classifying the fundus images by the severity of DR, so that an end-to-end real-time classification from fundus image to the condition of patients can be achieved. Instead of the doctors' manual operation with experience, it relieves their pressure on the diagnosis and treatment for DR in an automatic and high-accuracy way. For this task, we are employing various image preprocessing methods to extract many important features and then classify to their respective classes. We adopt CNNs architecture to detect the DR in 5 data sets. It employ publicly available Kaggle platform for training these models.

The proposed system involves a method of detecting cotton wool spots in the retinal images for diabetic retinopathy disease. Cotton wool spots are an abnormal finding on funduscopic exam of the retina of the eye. They appear as fluffy white patches on the retina.