

ABSTRACT

Diabetic Retinopathy is a disease caused by eye disorders that attack the retinal nerve organ. At first, Diabetic Retinopathy has mild and no symptoms. If this disease is left unchecked, it will get worst or can be blindness. Diabetic Retinopathy begins with blockage of blood vessels in the retina of the eye. The retina is very thin layer at the back of the eyeball that functions as a light catcher. In this Thesis, the researcher aims to classify Diabetic Retinopathy through digital fundus images using the Deep Neural Network there is Convolutional Neural Network (CNN) method.

The Convolutional Neural Network (CNN) method is a design for processing two dimensional data. And then, the operation for determining CNN parameters is huge. The processed data is a digital image that already exist in the dataset form of grayscale color system sourced from Kaggle with a total of 3365 with 2523 training data and 842 test data. The digital image used for research using the GoogLeNet architecture. GoogLeNet architecture which requires a long of convolution process. However, the architecture fairly high level accuracy.

In this Thesis, researcher used The Convolutional Neural Network (CNN) method with GoogLeNet architecture through research and several parameters used in the system as well as experiment with five scenarios which are finally collected into the best scenario. The best scenarios used the Adagrad optimizer, image size 64 pixels, learning rate 0.01, epoch 75 and batch size 32 to get the results of the classification Diabetic Retinopathy with an accuracy rate of 76.96%, a loss value 1.547, a precision value of 60.20% and a recall value of 58.20%.

Keyword : Diabetic Retinopathy ; Convolutional Neural Network (CNN) ; GoogLeNet