

ABSTRACT

Retina OCT image is an image of the disease in the retina of the eye produced by the OCT machine. This disease can cause the patient with vision problem so, classification of disease that damage the retina very needed. Biomedical classification for detection some disease on retina need a high knowledge and medical personnel who are expert in their sector. The process of diagnosing eye disease to classify them requires a long time. Therefore, we need a technique that can detect and classify an eye disease automatically.

This research design a system for classification of eye disease on Retina OCT based on Convolutional Neural Network (CNN) using the ResNet architecture. The OCT retina image will be processed with a pre-processing image process first before entering the training stage. The pre-processing Image consists of Contrast Limited Adaptive Histogram Equalization (CLAHE), Edge detection using Sobel and Canny, then Resize. Result of pre-processing image become the input of ResNet system

On this final assignment, system classify eye disease there are divided into four class which is, *Choroidal Neo Vascularization* (CNV), *Diabetic Macular Edema* (DME), Drusen, dan Normal. The number of datasets used as many as 10,032 training images and 400 test images. The Model designed on this final task generates the value of the parameter in the trainer using ResNet-18 with the CLAHE dataset and the batch size 8 as follows: validation accuracy 100%, validation loss 0.0064, precision of 98%, sensitivity of 97% and computing time around 1 minute 44 second.

Keywords: Retina Optical Coherence Tomography (OCT), Convolution Neural Network, ResNet.