ABSTRACT

Sight is one of the most important human senses, a deficiency which can affect a person's productivity and independence. Retinal disease affects millions of people and can result in vision loss if the disease is not diagnosed and treated early. This increase has led to the need for tools for medical personnel to detect the symptoms caused by this disease. The process of identifying and Optical Coherence Tomography (OCT) images requires experts and a qualified detection system.

In this final project, identification of diseases of the retina based on Optical Coherence Tomography (OCT) images is carried out using the Convolutional Neural Network (CNN) method. The image data used in this study are in the form of four classes of retinal diseases, which research can be obtained from www.kaggle.com. In the classification stage, the softmax activation function is used to classify into Choroidal Neovascularization (CNV), Diabetic Macular Edema (DME), Drusen and normal conditions.

The best system parameters are obtained with an output channel of 8,16,32,64,128, 5 hidden layers, using the Adam optimizer, a learning rate of 0.001 and a *batch size* 32. The results obtained under optimal conditions were obtained from the values of accuracy, precision, recall, and f1-score, which were 87%, 86.75%, 87.5%, and 87.25%, respectively.

Keywords: *Retina Diseases*, CNN, CNV, DME, *Drusen*, Normal, OCT