ABSTRACT

In 2020, the world has been faced with the COVID–19 pandemic. A pandemic is an epidemic of a disease that spreads widely, even globally. For example, to the whole world. This widespread disease is called COVID-19 or coronavirus disease caused by SARS-Cov-2. To detect this disease, radiological techniques can be used, but in use it is quite time consuming and can be said to be not accurate enough. Because the accuracy of the use of CT scans is high, it is proposed to use the CT scan method with modeling Convolutional Neural Network (CNN).

In this final project, a CNN system with EfficientNet architecture is designed to classify COVID-19 from CT Scan images. The experiment is use 1000 datasets which will be divided into two classes, namely covid and normal. The optimizers used include Adam, SGD, Nadam, RMSprop, and Adamax optimizers. Coupled with a learning rate of 0.001, 0.01, 0.1.

The purpose of this thesis, is to determine the performance of the EfficientNet model in classifying and what parameters affect the classification process. The result of this final project is that the best model for classifying this dataset is using the Adamax optimizer with a learning rate of 0.01 and the preprocessing used is CLAHE.

Keyword: COVID-19, CT scan, *convolutional neural network* (CNN), *EfficientNet,*