ABSTRACT

Covid has become a pandemic that has spread all over the world[1]. Based on the World Health Organization (WHO) weekly report on October 25, 2020, global cases of COVID-19 have reached 42 million cases and caused 1.1 million deaths. While in Indonesia it has reached 392.934 cases and caused 13.411 deaths[2], and still increase until to date . This is a serious threat to the entire infected country. For right now the whole world is fighting against this pandemic so that conditions don't get worse.

This final project will use the Deep Learning method using the ResNet architecture to detect COVID-19 from a CT scan of the lungs using 4 kinds of preprocessing on the image, namely normalization, Gaussian, CLAHE and Gaussian plus CLAHE . This final project will also use several variants of optimizer and learning rate with optimizer to be used, namely, Adam, SGD, RMSprop, Adamax, & Nadam and learning rate which will be used that is 0.1, 0.01, 0.001.

The performance parameters that are considered in this study are accuracy, precision, recall, & f1-score. Of all the experiments that have been carried out, the best results were obtained when using preprocessing Gaussian plus CLAHE, optimizer Adamax and learning rate 0.001 getting validation accuracy of 98%, precision of 0.98, recall is 0.98, and f1-score is 0.98.

Keyword: *Convolutional Neural Network*, ResNet, Covid-19