# ABSTRACT

COVID-19 is a virus that attacks the respiratory system which is really fast to spread. Many people got infected by this virus and it's already over 1 million people died because of COVID-19 and is always increasing. COVID-19 is making all doctors in this world tired because the total infected is already too many, even there is a case that a doctor got infected by COVID-19 so it's really hard to suppress the spread of this virus. There are many methods to help the doctor for handling COVID-19 such as Deep Learning methods.

This research will be using the Deep Learning method but the architecture is using AlexNet to detect COVID-19 from the result of a CT scan of the lungs because up until now there wasn't any research using AlexNet to detect COVID-19, so this research can be used to compare with other architecture. Aside from the architecture differences the data that will be used for training and validation will be given a preprocessing method such as normalization to make the images visible to the monitor, gaussian to reduce the noise that the images have, and CLAHE to increase the contrast of the images. Total dataset that will be used for training and validation are 1000 images which contain 500 images of ct-scan of infected COVID-19 lung and ct-scan of normal lung.

The performance parameters in this research are accuracy, loss, and precision, with the testing scenario using Stochastic Gradient Descent (SGD), Adadelta, RMSprop, Adam, and Adamax optimizers with learning rates 0.1, 0.001, and 0.0001. From all of the testing I've tried, the best result was 84.8% by using CLAHE preprocessing with Adam optimizer and 0.1 learning rate.


Keywords : COVID-19, CT scan, Deep Learning, AlexNet