ABSTRACT

Since 2020 the world has been faced with the COVID-19 pandemic. Coronavirus is a virus that generally attacks the respiratory tract. There are so many people who have been affected by the coronavirus, there have been more than 191 million people in the world. To detect the coronavirus itself, you can use several ways, one of which is by using a CT-Scan. Because the accuracy of CT-Scan is quite high, therefore this study will use CT-Scan as a dataset.

In this study, a classification carried out to detect covid-19 using the Convolutional Neural Network (CNN) method and also using the VGG16 architecture. The CT-Scan dataset classification process will be tested with 2 classes, normal and covid. The number of datasets is 1000 data and additional scenarios are also carried out for the best model by using a total of 1900 data for training and validation as well as 200 data for testing.

Architectural testing using the adam, SGD, Nadam, Adamax, RMSprop parameter optimizers with varying learning rates. The classification process before and after the Preprocessing data obtains the best accuracy with an accuracy value of 100% using the adam, Nadam, Adamax, RMSprop optimizer and the learning rate used is 0.0001 and by using the SGD optimizer, 100% accuracy is obtained using a learning rate of 0.01 .Based on all optimizers the best is Adam optimizer, because it has quite low overfitting. Using additional scenarios in the best model optimizer adam with 4 preprocessing using 1900 data validation and training and 200 data for testing, getting the best results is using preprocessing optimizer adam CLAHE *with a value of 96% for validation and for testing it gets 93%.*

Keywords: *CT-Scan*, COVID-19, CNN, VGG16.