ABSTRACT

Pneumonia is one of the health problems worldwide that is the cause of death. Pneumonia can be identified by looking at a chest x-ray. However, the possibility of this pneumonia diagnosis can be an error in the identification of pneumonia disease manually. Then use the system computer-based imagery to assist in diagnosing pneumonia so as to minimize errors and speed up the process of pneumonia identification. One method in a computer-based image processing system that functions to detect pneumonia is the Convolutional Neural Network (CNN).

In this final project, testing using chest x-ray images for pneumonia detection with Convolitional Neural Network (CNN). The architecture used is VGG-16 which consists of 16 hidden layers. The dataset used is 3,166 images. The images used in this study are divided into 2 classes, namely normal and pneumonia. The image will be preprocessed resize, namely changing the image size.

The results obtained in this final project are obtained with the best parameters, namely image size 128×128, Optimizer Adam, Learning Rate 0.0001, Epoch 30, and Batch size 16. With performance results, namely accuracy of 96.85%, Loss of 0.1390, precision of 97%, 97% recall, and 97% f1 score.

Keywords : Pneumonia, Normal, CNN, Chest X-ray, VGG-16.