ABSTRACT

Lung disease is a disease that is suffered by many humans. When a person suffers from lung disease, various examinations are carried out to confirm what kind of disease is suffered. One of them uses x-ray imagery, but not all hospitals have doctors/radiologists who competent in this area. How to overcome the problem is made a breakthrough to assist the doctor/radiologist in analyzing the x-ray image of the patient.

In the research, the classification process was carried out with a knowledge deistillation model with a Vision transformer (ViT) architecture as a teacher and mobile-net as a student. There are 3 datasets used for research, the first of which original dataset, dataset image enhancement model gamma correction and dataset model CLAHE. Classification system done to recognize x-ray images with 5 specified classes, namely: normal lungs, covid-19, viral pneumonia, bacterial pneumonia, and tuberculosis.

The results obtained in the lung disease classification study using the image enhancement technique with the best parameters of each dataset are, for the original dataset or without image enhancement an accuracy performance value of 93.07% was obtained, for the image enhancement dataset model gamma correction obtained an accuracy performance value of 92.91%, and an image dataset enhancement model CLAHE obtained an accuracy performance value of 91.25%. These results can be used as a reference that the application of image techniques enhancement has not been able to improve the level of accuracy in the classification process.

Keywords: *CLAHE, Gamma Correction, Knowledge Destination, Lung disease*