

ABSTRACT

Skin diseases, in general, are caused by bacterial, fungal, parasitic infections, and basic allergic diseases. Some skin diseases can be diagnosed and classified with the naked eye, but diagnosis with the naked eye tends to be subjective. Objectively diagnosing skin diseases can be done using laboratory test methods, but to carry out laboratory tests requires a larger cost and takes a long time.

Therefore, several solutions have been developed to overcome the problem of diagnosing skin diseases, including using skin image processing methods using programming languages and producing compatible software used to diagnose and classify skin diseases. One of them is by using a convolutional neural network (CNN) which is one of the algorithms of deep learning.

In this research, the CNN architecture used is AlexNet. For the dataset used, there are 1500 images of skin diseases which are divided into five classes. Three test models were conducted to determine the effect without using CLAHE and Gaussian pre-processing with the influence of CLAHE and Gaussian pre-processing. In addition, a test scenario is also carried out to find the optimizer, learning rate, epoch, and batch size that can produce accurate and best losses. The best model and test scenario in this research is to use Gaussian filtering in pre-processing and use the hyperparameter optimizer Adamax, learning rate 0.001, epoch 50 and batch size 64. Accuracy obtained is 0.9760 and loss is 0.1850.

Keywords: *Convolutional Neural Network (CNN), AlexNet, Skin disease.*