ABSTRACT

Cervical cancer is one of the most dangerous diseases affecting women. Cervical cancer occupies the second position with a high mortality rate of women every year according to WHO. The cause of this disease is due to the presence of the *Human Papilloma Virus* (HPV) attacks directly into the cervix besides that an unhealthy lifestyle can affect the attack of this disease. Early detection of cervical cancer can be done using several methods, one of which is the *Acetic Acid Visual Inspection* (IVA) examination.

By conducting an IVA examination, it can be known whether the patient is infected with the HPV or not. IVA examination can be carried out in various health services. The results of the IVA examination can be seen by the naked eye but medical experts have differences in diagnosis due to their own vision. Therefore, to help medical experts get the appropriate diagnosis, the examination can be carried out with a technological approach. The technology to be used is digital imagery. Shooting the results of the IVA examination using the medical expert android camera in .jpg image format.

In this study, a classification of cervical cancer images was carried out from the results of the IVA examination that had been carried out by Hasan Sadikin Hospital Bandung with a lot of data on Negative IVA 255 and Positive IVA 65. For the processing of the image of the results of the IVA examination will use the CLAHE result image and the *Canny Edge Detection* result image. For classification, it will use *deep learning* with the ResNet-50 and ResNet-101 architectures and test *hyperparameters* namely *optimizer, learning rate, batch size,* and *input size*. In this study, the best results used the image of *Canny Edge Detection* results with *hyperparameters* using SGD *optimizers*, *learning rate* 0.1, *batch size* 32, and *input size* 224×224. From the *hyperparameter*, the result of the acquisition achieved was as much as 98.26%.

Keywords : Cancer Servix, Digital image processing, IVA Examination, *Canny Edge Detection*, *ResNet.*