

ABSTRACT

Leukemia is cancer that originates from human blood cells. The malignancy can develop rapidly, if not treated promptly and can be fatal to the patient's condition within a few months. Because it requires fast and precise medical treatment, technological developments are the target of medical personnel in order to obtain appropriate results and reduce human error in diagnosing a disease.

In the development of this technology there is a system that can diagnose a disease quickly just by using images of the disease. Therefore, the authors designed a system that can detect the presence of leukemia cells in the human body. This system is a Convolutional neural network (CNN). CNN here is able to process images into the output we want. This proposed system is able to classify images into two classes using 2 architectures namely VGG16 and ResNet50 and 2 optimizers namely adam and rmsprop.

In this design, the dataset used is the C-NMC Leukemia 2019 dataset with a test scenario in the form of the effect of epoch variations 10, 20, 30, 40, 50 60, 80 and 100 and a learning rate of 0.0001 on the proposed system. The best results show that the accuracy of training is 93.80% and accuracy testing is 87.00% by testing the VGG16 model architecture and using the adam optimizers.

Keywords: *Leukemia, Convolutional neural network, VGG16, Deep Learning*