ABSTRACT

Skin cancer is one of the most common malignant cancers in Indonesia and can cause death. Skin cancer diagnosis is done manually by a dermatologist through a biopsy and microscopic process. However, this process takes a long time and carries the risk of accidents during the biopsy process. While early diagnosis shows more than 90% can be cured, while late diagnosis shows less than 50% can be cured.

In this final project, the Convolutional Neural Network (CNN) method using Alexnet architecture are proposed to classify skin cancer. Experiments were carried out using a dataset obtained from the International Skin Imaging Collaboration (ISIC) dataset of 4000 images of skin cancer conditions dermatofibroma, melanoma, nevus pigmentosus, and squamous cell carcinoma, consisting of 1000 images in each class. The dataset will be used as training data and validation data with the percentage distribution of 80% training data and 20% validation data. So the number of training data used is 3200 skin cancer images. While the number of validation data used is 800 images.

The best parameters used in this skin cancer classification system include using a 64x64 pixel image resizing in the pre-processing process, using the Adam optimizer, learning rate 0.0001, epoch 20 and batch size 16. The test results show that the system can classify skin cancer according to its class, with an accuracy rate of 99.50%, a precision and recall value of 99.75%, an f1-score value of 99.50%, and a loss value of 0.0223.

Keywords: *Skin cancer, Convolutional Neural Network, Alexnet.*