ABSTRACT

Skin is the outermost part of the human body that has an important function. It's functions are protect internal organs and maintain a healthy body. Moreover, facial skin primarily has an aesthetic value that requires special care. So the information about facial skin types is needed.

Related Research about classification of facial skin types has been done several times. One of them used a deep learning method, that is Convolutional Neural Network that gets a high accuracy of 99.5%. In this final project, the CNN method with a simple modified architecture is used to obtain maximum feature extraction. A total of 1560 microscopic image datasets divided into 80% training data and 20% validation data. The data is input to the pre-processing stage. After that, the image will through the convolution, RelU, pooling and dropout phase. The system is designed by adding convolution and pooling layers from a simple CNN architecture that usually use 3 layers, in this Final Project the layers added into 5 layers. After the feature extraction process, the image go to the fully connected layer. This is the image classification stage, first the image through into flattening and dense process. The image is classified by softmax process into 4 classes, that are normal skin, dry skin, oily skin, and combination skin.

The system designed in this Final Project was tested in 5 scenarios. The result shows that the classification system of facial skin types using this CNN modification is optimal if the parameter values are as follows, the image resize is 64×64,the optimizer is Adam, the learning rate is 0.0001; the epoch is 200 and the batch size is 64. With the accuracy of 99.51% and the loss of 0.0048, this Final Task research is quite equivalent to the previous related research.

Kata Kunci: Deep Learning, Convolutional Neural Network, Facial Skin Type, Classification of Facial Skin Type.