

ABSTRACT

Psoriasis is a disease that can attack the skin on all parts of the body and does not look at a person's age. As a result of the disease can reduce the physical and mental health of the sufferer which in turn will interfere with the patient's daily activities. Psoriasis is very dangerous because it can affect immunity if the patient has several comorbidities that can cause death. At this time there is still no way to know the type of this disease other than doing research on the patient's cells. With the development of technology, a system can be made to detect the disease by segmenting the image using Fractal and K-Nearest Neighbor methods.

Fractals are objects that have self-similarity but on a different scale. This means, the parts of the object will look the same as the object itself when viewed as a whole. Fractal will produce a fixed point or attractor. Attractor points cause whatever type of image is input, the final result will be the same. K-Nearest Neighbor is used to find the shortest distance between the training data entered into the database and the test data and classify them.

This final project aims to create an application in Matlab that can be used detect and classify the types of psoriasis. The classification is divided into three classes, namely: Psoriasis Pustular, Psoriasis Vulgaris, Psoriasis Guttate. The data used is obtained from the dataset available on the Kaagle.com website as many as 33 test data images, with each class totaling 11 images, and 66 training data images with each class totaling 22 images. In this final project fractal is used as feature extraction, and K-Nearest Neighbor is used as classification.

Tests that have been carried out through a system that has been designed, have outputs with a high level of accuracy. The system built can identify psoriasis through skin images and can classify images into three image classes with an average computation time of 20.1 seconds and has the highest accuracy rate of 97% when the K-Nearest Neighbor (K-NN) value of $K=1$.

Keywords: Psoriasis, Image, Fractal, K-Nearest Neighbor.