

ABSTRACT

Humans have bones and joints (motion system) that has many functions to support their life. One of the most essential parts of human bone is the backbone (spine), because it functions as the structural support that can support the upper body (head, shoulders and chest) and connects with the lower body (abdomen and pelvis). However, it is inevitable that there are several causes that can lead to abnormalities in the spine which can then interfere with the effective functioning of the spine as well. By calculating the degree of spine curvature can be known that there is scoliosis that form of spine abnormalities which are often found in humans.

In this final project, calculation the degree of spine curvature consists of several processes. The calculation process begins with the preprocessing of the spine image, the process of feature extraction using Contourlet Transform and classification using the KNN (K-Nearest Neighbor). Results of feature extraction will be the input for the KNN which is a method to perform recognition on objects that have the closest distance to the data of learning.

The system in this final project has been tested on level of performance by the accuracy parameter. Implementation of systems is capable to calculate the degree of the spine curvature that have scoliosis abnormalities with an average accuracy from each class spine condition is 66.25% and average accuracy from each spine degree is 62.5% of 28 images in training data and 20 images in testing data.

Keywords: Spine Image, Scoliosis, Contourlet Transformation, K-Nearest neighbor (KNN).