

ABSTRACT

Sub-fossils are a remnant of living things that become rocks or minerals due to being covered by sediment. One of the most common and we know is the teeth. The tooth itself has a varied form for every human, according to the age and type of food. One part of the tooth is the enamel, which is the substance that coats the tooth and has a hard structure. Enamel teeth serve as a protective gear from damage. In dental sub-fossils, especially the part of the molars, we can observe the pattern of tooth enamel as one way of identifying the location of the molars above or below and the age identification of a human tooth molars. The study of sub-fossil molar tooth will be assisted by Geologists from Bandung Institute of Technology objectively and need to be made an application to assist the identification process.

In this Final Project made a digital image processing application based on Matlab which will analyze digital image of human tooth molars through characteristic extraction which will then be classified to identify the position and age position of the human molar sub-fossil. The method of feature extraction used is Local Binary Pattern (LBP) method. The Local Binary Pattern (LBP) itself has the advantage of defining it as a gray-scale invariant texture dimension that on each pixel has a grayscale value, then threshold is centered on the midpoint. As for the method of classification, used the method of Learning Vector Quantization (LVQ). As a result of system testing, an accuracy of 77.69% is achieved in identifying the lifespan of death from human sub-fossils. As for identifying the type of molar teeth, an accuracy level of 81.81% is obtained.

Keywords: *Enamel on Tooth Sub-Fossil, Tooth Molar, Local Binary Pattern (LBP), Learning Vector Quantization (LVQ).*