ABSTRACT

Human fossils are a collection of extinct human physique up to hundreds of years ago and former dental fossils that can be researched for information on human evolution. Geologists especially in the field of paleoanthropological forensics desperately need a matlab-based application to aid in the identification of the fossil.

In this final project the author uses the Gabor Wavelet (GWT) method for feature extraction with a linear Dicriminant Analysis (LDA) ranking that reduces the dimensions for image, to obtain information about human evolution and fossil identity. The features used are size, and shape, with the stage of shooting, then the application process based on matlab image processing with Gabor Wavelet method (GWT).

The MATLAB-based application program system created using the Gabor Wavelet image processing method and Linear Discriminant Analysis classification functions to identify the age range of dental fossil death, and the type of molars. by looking at the pattern of molar tooth wear it can be identified fossil age of molars, whereas for the identification of the position of molars can be identified based on the number of cups in fossil molar teeth.

The results obtained from this final research is the application based on MATLAB with 84.61% accuracy. To identify the age of fossil tooth death of gerham with total data 270 images consist of 140 image of train where 110 image for classification class 17-25 years and 30 image for classification class 25-35 years, test image total 130 image which consist of 100 image with class classification 17-25 years and 30 images with classification class 25-35 years. And 86.15% for identification of the type of molars with 270 images consisting of 140 training images where 70 images for upper tooth classification class class and 70 images for lower tooth classification class, test image total 130 images consisting of 100 images for the class upper tooth classification classification and 30 images for the lower tooth classification class.

Key words: Fossil Tooth Molar, Digital Image Processing, Gabor wavelet, Linear Terriminant Analysis.