

ABSTRACT

As a substitute for fingerprints, forensic dentistry odontology of Padjadjaran University has conducted research on your teeth enamel pattern that can be used as identification of the human identity in addition to fingerprints. This is because teeth are able to withstand extreme conditions.

Such research is still carried out manually using the Photoshop. It takes a long time to get a very clear photos with high resolution. Therefore, researchers interested in conducting research on digital image processing of the enamel of the tooth using the Kuwahara Filter method on preprocessing, Local Binary Pattern (LBP) as characteristics extraction methods and K-Nearest Neighbor (K-NN) as a method of classification by the population of this research is a 300 dental image.

The results of this study indicate 6 scenario i.e. based on statistical parameter with the appropriate parameters when a combination of two parameters that are variants and kurtosis, based on the size of the window Kuwahara Filter with the size of the window the right is 33x33, based on the influence of adding Kuwahara Filter and unfiltered Kuwahara where adding better filters, based on the type layer the right to use grayscale layer, based on the block size of LBP where the right size is 5 x 5, and based on a parameter of K-NN with the kind of distance that right is the cityblock and $k = 3$. From the results of this research it can be concluded that the first, Kuwahara Filter and K-NN method can be used to identify patterns of each individual tooth enamel prints with LBP as feature extraction. Where identification system has been able to do the process of pattern tooth enamel but not optimal because there are some wrong image in the identification process. Second, in this system best accuracy is 99% with type of distance is cityblock and $k = 3$ on the K-NN, and the size of the window 13x13 on Kuwahara Filter, size blocks on LBP is 5 x 5 and use statistical parameter variant and kurtosis. Time computation efficient on this system is 116.4619s.

Keywords : *Tooth Enamel, Filter Kuwahara, K-Nearest Neighbor (K-NN) , and Local Binary Pattern (LBP)*