

ABSTRACT

Human teeth is a part of human digestive system in which it holds an important role. If human teeth contract a disease, it will surely hinder human activities because our teeth is directly related to body metabolism. Common diseases incude granuloma, abcess, cysts, and pulpitis. Those kind of diseases can be difficult to see using bare eyes, but can easily be detected by a radiologist using periapical radiography which shows an x-ray image of a patient's whole teeth.

Because radiologists specializing in human teeth are still limited in number, dentists need an equipment which can give a preliminary analysis of a patient's teeth. The said equipment can be brought to existence using periapical radiography image processing. This research is focused on the detection of granuloma and image prototypes will be synthesized based on previous researches using both digital and periapical radiography image processing. A characteristic extraction and classification method which focuses on spatial domain and teeth diseases in general will be chosen based on every reviewed methods.

In this thesis, the reviewed methods are Gray Level Co-occurrence Matix (GLCM) and Binary Large Object (BLOB) for characteristic extractions, and K-Nearest Neighbor (KNN). Same data used to test both Methods are granuloma image and non granuloma image with 20 testing images and 16 training images. This research syhtesis resulting highest accuracy by using GLCM method with 90% and computing time 0,4118 seconds with image size 128×128 pixels, quantization level 8 and value $k = 1$.

Keywords: *Spatial Domain, Human Teeth, Granuloma, Research Copyright, Periapical Radiography*