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Tesis: "SEGMENTATION OF MOLARS IN NOISY PANTOMOGRAMS USING DIGITAL IMAGE PROCESSING TECHNIQUES"

Resumen:

In this thesis, digital image processing techniques were used in order to isolate and segment individual molars in pantomograms; in particular, second and third molars. This is done using two different approaches pre-processing the image. The general area of the tooth is cropped beforehand manually in order to speed-up the digital image processing techniques. The orientation of the segmented molars is also determined using image moments. In both implemented methods, the pantomograms are preprocessed by applying a Gaussian filter to smooth some edges of the image. The smoothed image is then clustered into superpixels, and the mean color of each cluster is computed. Each pixel is then assigned its cluster's mean color. This helps to achieve color uniformity and reduces noise while preserving important image information such as edges. The digital image processing techniques are applied to the pantomograms supplied by the Faculty of Dentistry of Universidad de la Salle Bajío.