

DIAGNOSIS AND INTERPRETATION OF DENTAL X-RAY IN CASE OF
DECIDUOUS TOOTH EXTRACTION DECISION IN CHILDREN USING
ACTIVE CONTOUR MODEL AND DECISION TREE

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ABSTRACT

Normally, children suffer from a tooth eruption because their permanent teeth do not push their way through the gums; therefore, the dentist will need to diagnose the dental X-ray image. This paper proposes image processing based on Active Contour Model and data mining for analyzing the ratio of teeth's gap area. In addition, the experiment relates to medical knowledge so as to evaluate the treatment. The results show that the ratio of teeth's gap area in a case of extraction is 20 ± 5 , and the tooth extraction decision in expert's way is $78 \pm 7\%$. In a case of no extraction, the ratio of teeth's gap area is 40 ± 4.5 , and the tooth extraction decision in expert's way is $60 \pm 6\%$. Therefore, if the teeth's gap area between the deciduous teeth and the permanent teeth is small, then the occasion of the tooth extraction will be higher. The decision to retain or extract a questionable tooth is one that occurs frequently in dental practice. There are many factors to consider when making this decision. This proposed method creates the decision model supported for the dental tooth extraction using C4.5 decision tree, and the accuracy is approximately at 98%.

KEY WORDS: DECIDUOUS TOOTH / TOOTH EXTRACTION / DECISION,
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