Bone Age Measurement-Based on Dental Radiography, Employing a New Model

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Abstract Bone age measurement is a process for evaluating skeletal maturity levels to estimate one's actual age. This evaluation is generally done by contrasting the radiographic image of one's wrist or dentition with an existing uniform map, which contains a series of age-recognized images at any point of its development. Manual methods are based on the analysis of specific areas of hand bone images or dental structures. Both approaches are vulnerable to observer uncertainty and are time-consuming, so this approach is a subjective approximation of age. As a result, an automated model is needed to estimate one's age accurately. This framework aims to develop a new Fatemeh Ghazal Sharifonnasabi (FGS) model for accurate measurement of bone age ($\pm$ 1 year) or less than that with dental radiography. This study will use a new image processing technique, which involves creating a histogram of dental orthopantomogram (OPG) X-rays. In the machine, learning classification can be grouped as the training and testing phase. The training phase is used to extract all the images' features for the classification model. The convolutional neural network (CNN) and K-nearest neighbour (KNN) classifications are ideal for this problem, based on the available literature.

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7 Future Work

In the following work, more criteria will be considered to maximize accuracy. During the implementation, a combination of radiographic techniques and various machine learning techniques will be evaluated to improve the precision of the data set training and help with forensic issues related to the accuracy of age judgement that can be improved.

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