Effectiveness of Using Radiology Images and Mask R-CNN for Stomatology

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Abstract

Dental health-related disorders have proliferated worldwide due to the excessive intake of fast food and sugary foods, which was followed by bad oral hygiene practices. The cost of dental examinations may change based on how critical the condition is, regardless of whether they are not regular. For a person, diagnosing an oral health problem, particularly locating the disease's underlying cause, can be challenging. In order to properly diagnose and treat such conditions, advanced dental diagnostic techniques may be necessary. By offering convenience and enhancing their oral health knowledge, the system seeks to serve as a prediction tool that regular people can utilize to detect potential tooth illnesses at an early stage. It is encompassed as a mobile application where a Mask R-CNN model is used in the core that accepts a dental radiograph as the input. The trained model will be able to identify diseases related to the bone and teeth. Based on the performance evaluations, the accuracy of the results that are obtained in tooth type, restoration quality, dental caries, and periodontal disease identification falls in the range of 75% - 80%.

Keywords

Mask R-CNN, Stomatology, Dental Application, Deep Learning, IOPA X-Ray