

ZappyJaw, dental images diagnosis assistant for Dentists.

Background, Problem and Solution

Dentists perform a misdiagnosis of 37-46% in x-ray images, which implies a negative impact on the planning and implementation of a dental treatment of patients. On the other hand, they take between 5 to 20 minutes to make a dental report of x-ray images, which is equivalent to invest up to 70% of the time of a dental visit of 30 minutes, increased work overload due to the multiple tasks they must perform simultaneously and diminished the patient attention.

ZappyJaw is a web application for assisting the dental x-ray images diagnosis and provide the best report for dentists in few seconds. With this solution, help to the doctors to improve their dental x-ray precision and relief their work, allowing them to focus on what matters, to deliver the best attention and planning - treatment for patient.

The following web application will be based on deep learning (image processing). For its development, it is essential to collect at minimum number of dental x-ray images for the generation of a dataset that meets the established criteria for subsequent utilization and trained dental radiologists for dental images labelling software.

To validate the development of the prototype, it will be tested by a number of predefined radiologists, as well as the development of a special software for the conflict resolution that can occur in the diagnosis of dental x-rays issued by radiologists. The precision obtained in the analysis will be measured.

Objectives

1. Problem Exploration
 - a) Interviews with potential customers.
2. Develop prototype
 - a) Develop high quality labeled Bitewing Images Dataset for AI training
 - b) Develop Artificial Intelligence for diagnosing Bitewing images
3. Validation and Testing
 - a) Develop a software to diagnose images and generate dental reports instantly.
4. Get Funds

Expected Results and Outlook

In the training of a dataset composed of 3,000 bite-wing radiographs has been achieved in a first approximation, 85% accuracy in the detection of deep caries. In recent researches, the accuracy is up to 90%. Under these findings, it is considered necessary to increase the volume of the dataset to be used and the number of radiologists, as first approach.

In Chile, it is necessary to promote this type of projects and research based on the use of artificial intelligence. The development of this application is pioneer in the dental market in Chile

and Latin America, which would make it possible to contribute to the use and research of this technology in Dentistry and Health.

References:

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