



SMILED

SMART MACHINE FOR IDENTIFYING DENTAL LESION

SIGNIFICANCE

Worldwide Problems on Dental

Importance of lesion classification, prediction, and localization

Role of AI in dental diagnosis

- Based on The Grand View Research, the global dental imaging market was valued at around **USD 2.4 billion** in 2020 and is expected to reach **USD 3.7 billion** by 2028, with a compound annual growth rate (CAGR) of 6.3% during the forecast period.
- The market growth is driven by factors such as the increasing adoption of digital dentistry, the growing geriatric population, and the rising demand for cosmetic dentistry procedures.
- All CBCT imaging in the world are using the common DICOM system and our innovation can use images from this DICOM format to do the lesion segmentation.
- This is also in line with **UNSDG Goal #3: good health and well-being** and **#9: industry, innovation and infrastructure**.

Limitations of bitewing radiography

Dental caries not only causes tooth pain but can also result in tooth loss

Worldwide Problems on Dental

GAP

poor image quality

intricacies of medical structure

vast variety of types of topology

fuzzy border edges

does not focus on a specific disease, healthcare system

3 GOOD HEALTH AND WELL-BEING

Oral diseases are the most prevalent noncommunicable diseases worldwide

Oral diseases such as caries and periodontitis are prevalent worldwide yet still remain low priority

increase global health awareness within dentistry

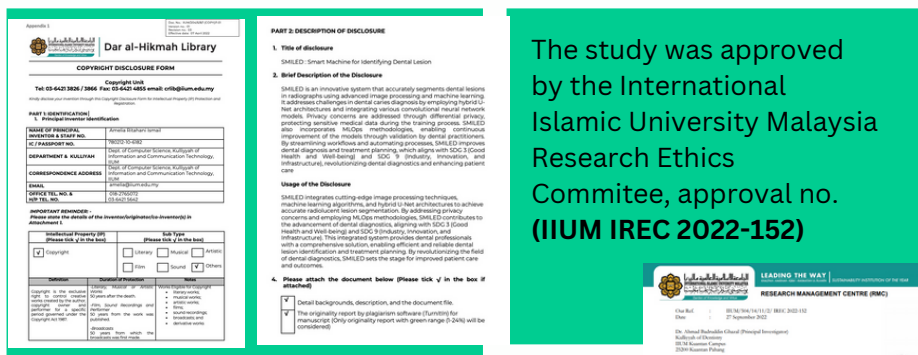
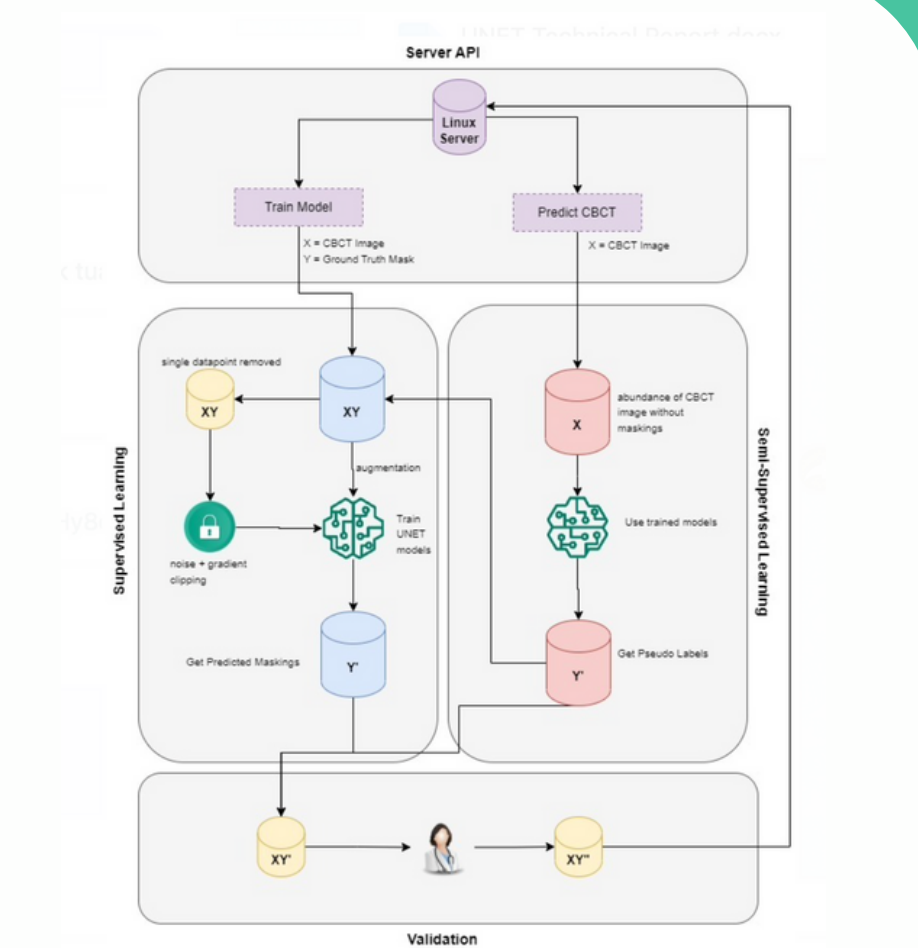
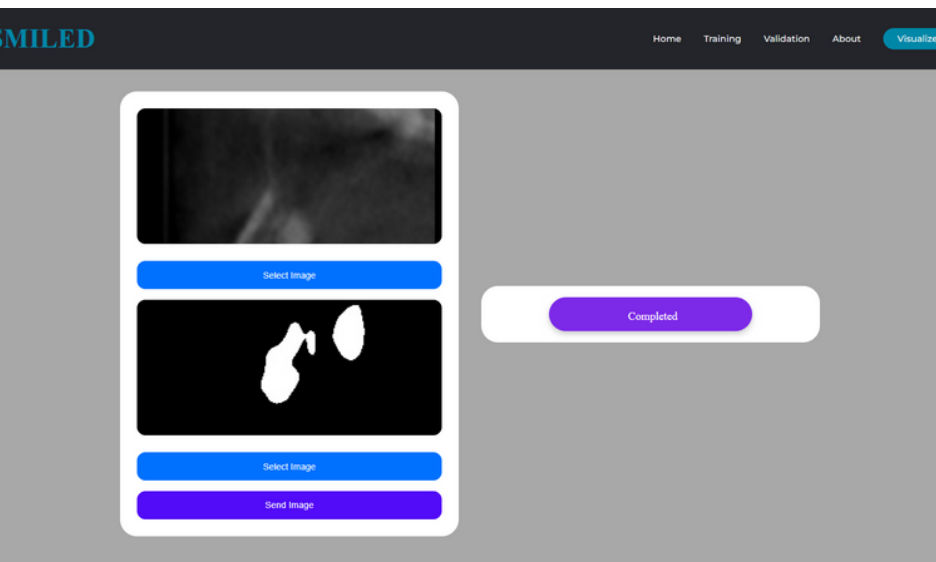
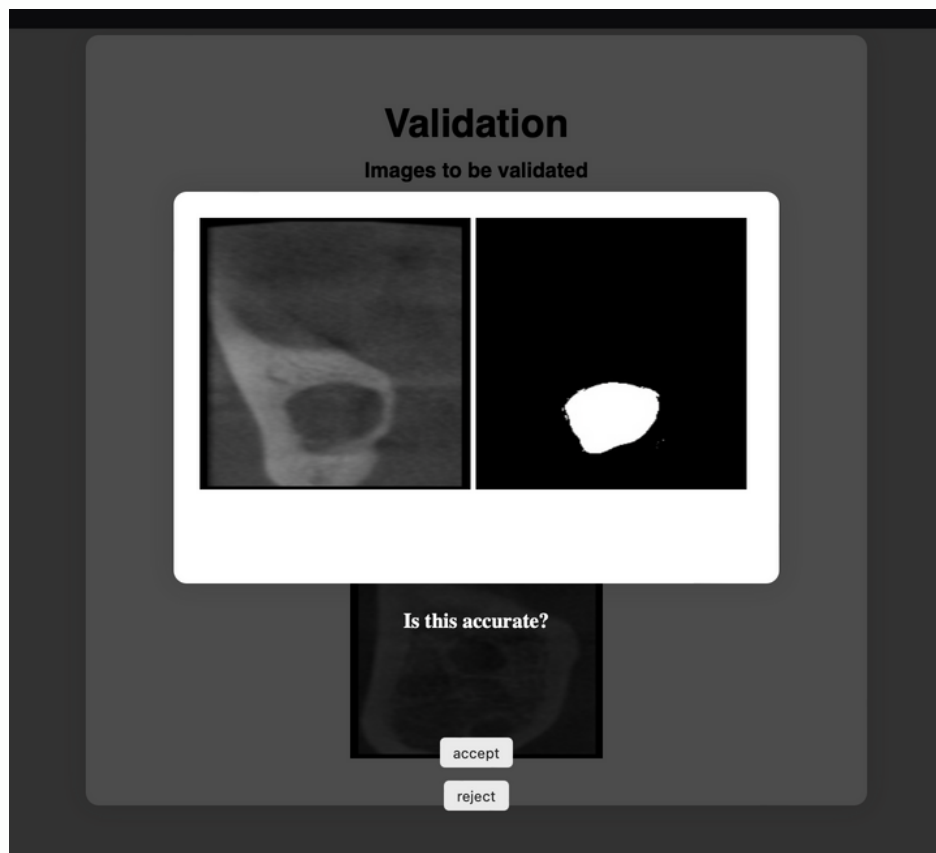
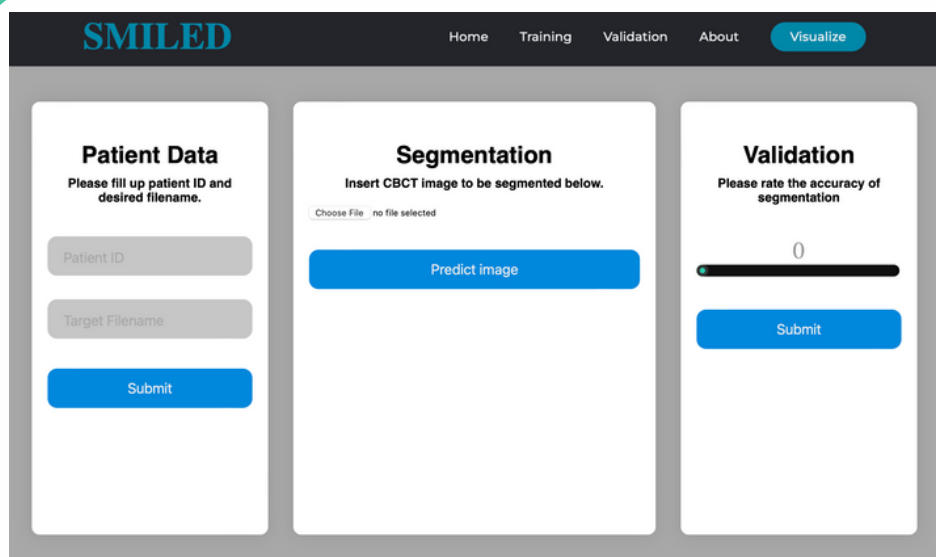
1:NOVELTY

2:MARKET SIZE

3:CBCT IMAGING

- CBCT is an advanced 3D imaging modality in dentistry, developed in early 2000 and crucial in diagnosing many dental conditions and diseases.
- It offers **great radiation dose reduction** when compared to conventional medical CT imaging.
- Interpreting dental diseases is not easy, and visualization of the disease/lesion can help dentist with patient acceptance for treatment.

PRODUCT INTERFACE



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PATENT SEARCH

- machine learning dental cbct cyst segmentation: 20 patents
- machine learning dental cbct tumor segmentation: 44 patents
- machine learning dental lesion segmentation: 102 patents
- lens.org 28 June 2023

PUBLICATIONS

Dual U-Net with Resnet Encoder for Segmentation of Medical Images
 January 2022
 International Journal of Advanced Computer Science and Applications
 13(12)
 DOI:10.14569/IJACSA.2022.0131265

Comparative Performance Analysis of Deep Convolutional Neural Network for Gastrointestinal Polyp Image Segmentation
 April 2021
 International Journal of Innovative Research in Science Engineering and Technology 8(4):8

Medical Image Analysis using Deep Learning: A Review
 December 2020
 DOI:10.1109/ICETAS51660.2020.9484287
 Conference: 2020 IEEE 7th International Conference on Engineering Technologies and Applied Sciences (ICETAS)

myDENTIST @ ampang

16 March 2023

Dear Professor Dr. Zainul Ahmad Rajion,

Thank you for issuing the Letter of Intent to Collaborate in Digital Dentistry Research between the International Islamic University Malaysia, the Premier DigitalTech University with myDENTIST@ampang.

2. It is my pleasure to respond to your letter and express our keen interest in working together with you on this exciting collaboration.

3. We are delighted to learn that you share our interest in digital dentistry research and that your university is committed to exploring areas such as artificial intelligence, 3D printing, dental radiology, dental diagnostics, and others. At Premier DigitalTech University, we strongly believe that collaboration between academia and industry is vital to advancing research and innovation in various fields, and we are excited to embark on this journey with you.

4. We appreciate the opportunity to work together on this collaboration, and we look forward to exploring the various areas of research that you have identified. We will strive to make the collaboration a success by bringing our expertise and resources to the table and by ensuring open communication and effective coordination between our teams.

5. Thank you once again for considering us as your partner in this endeavor. We are eager to start this collaboration and look forward to a fruitful and mutually beneficial partnership.

Best regards,


 Dr. Abu Raszi Bin Sani
 BDS (M) |
 Principal Dentist

C.c Dr Ahmad Badrudin Ghazali
 BDS (Hons), MSc OMRP (Mandiri)

LETTER OF INTENT