

Bridging Gaps: **How AI is Solving the** **Dental Industry's** **Biggest Challenges**

ISO/IEC Artificial Intelligence:
Fourth Workshop

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Dental Imaging: The Landscape



2D x-ray : Periapical and Bitewings



2D x-ray : Orthopantomogram (OPG) or Panoramic



3D x-ray: Cone Beam Computed Tomography (CBCT)

The importance of AI in the dental space



Computer-aided detection (CAD)

Detect abnormalities and highlight potential areas of concern in dental x-ray images .



Quantitative image analysis

Analyse medical images to extract quantitative measurements and features that aid in disease characterisation and treatment planning



Automated triage

Prioritise imaging studies based on urgency, allowing radiologists to focus on critical cases first.



Image reconstruction

Enhance image quality, reduce noise, and improve resolution in medical imaging.



Predictive analytics

Identify patterns and predict patient outcomes.



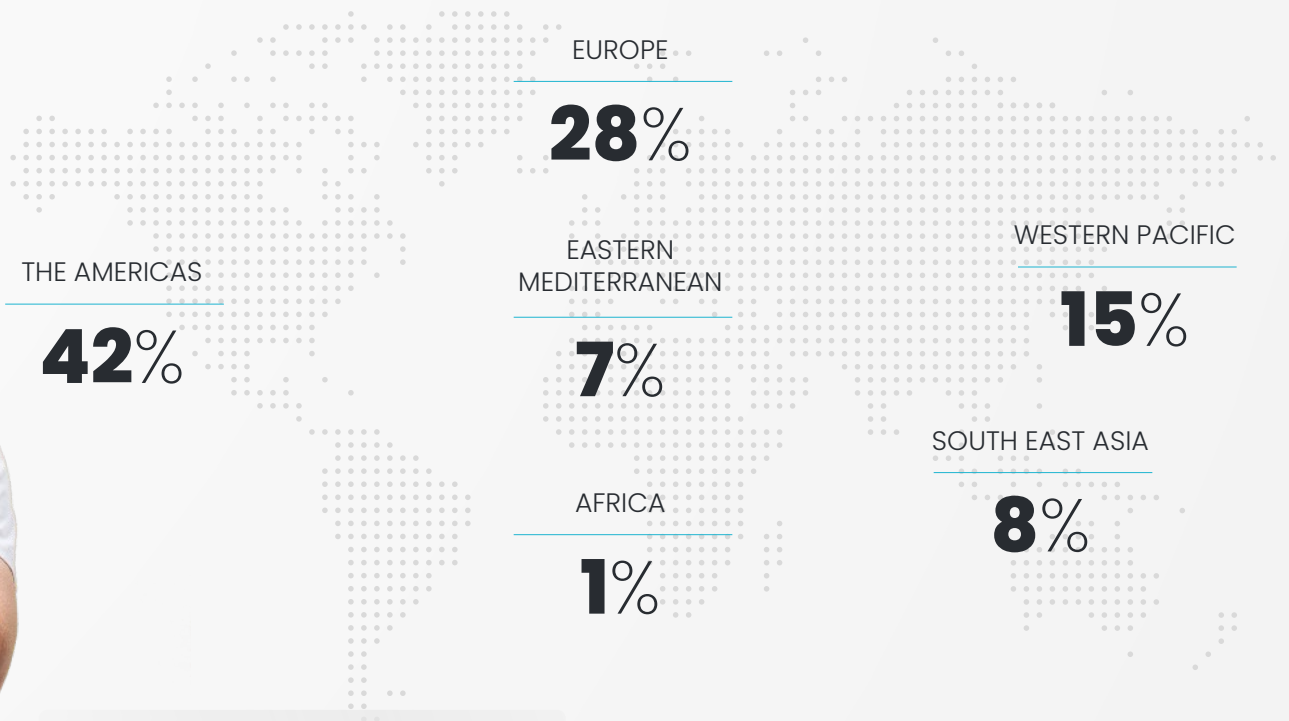
Market Size

Total Number of
Dentists in the world:

1.6
Million

Number of X-rays
taken annually:

1.4
Billion



Based on 1.6 million
dentists around the world

Highest Rates of Misdiagnoses



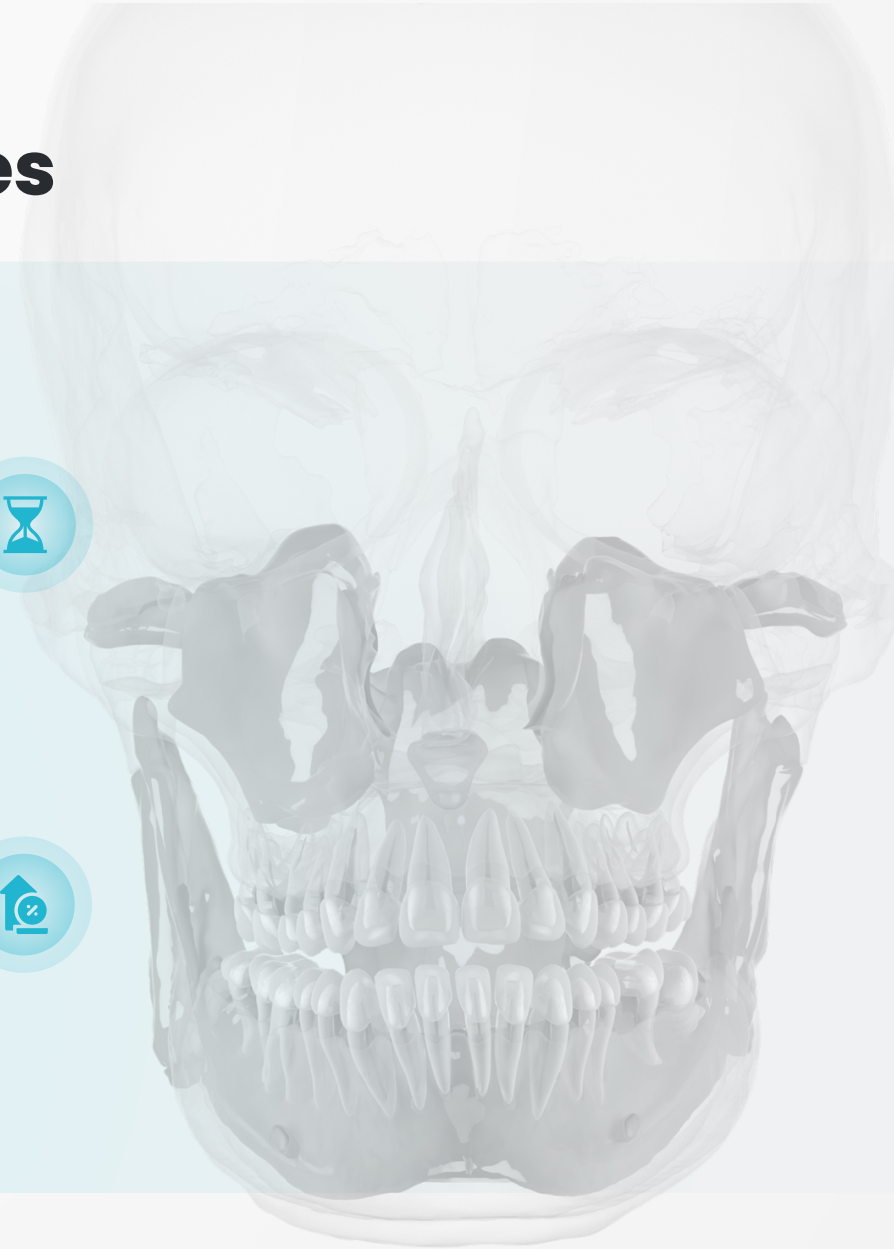
**Complex
Radiographs**

**Time-consuming
manual
measurements**



**Multifaceted
Roles**

**Solitary
Environment**



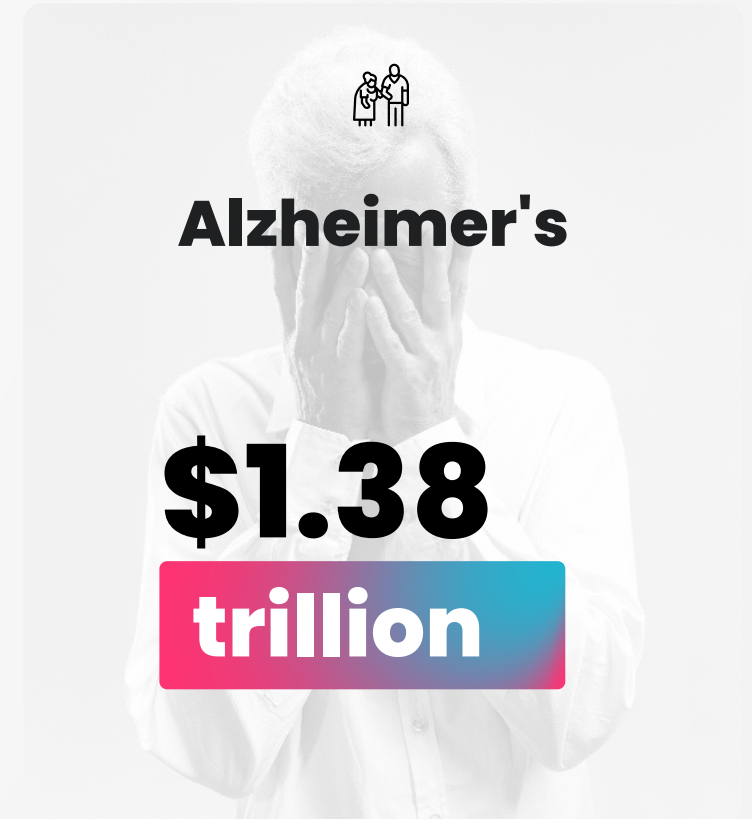
More than **50% of adults** are
diagnosed with **Periodontal
Disease** (gum disease)

BUT

Close to **49% of
diagnoses** are **missed**

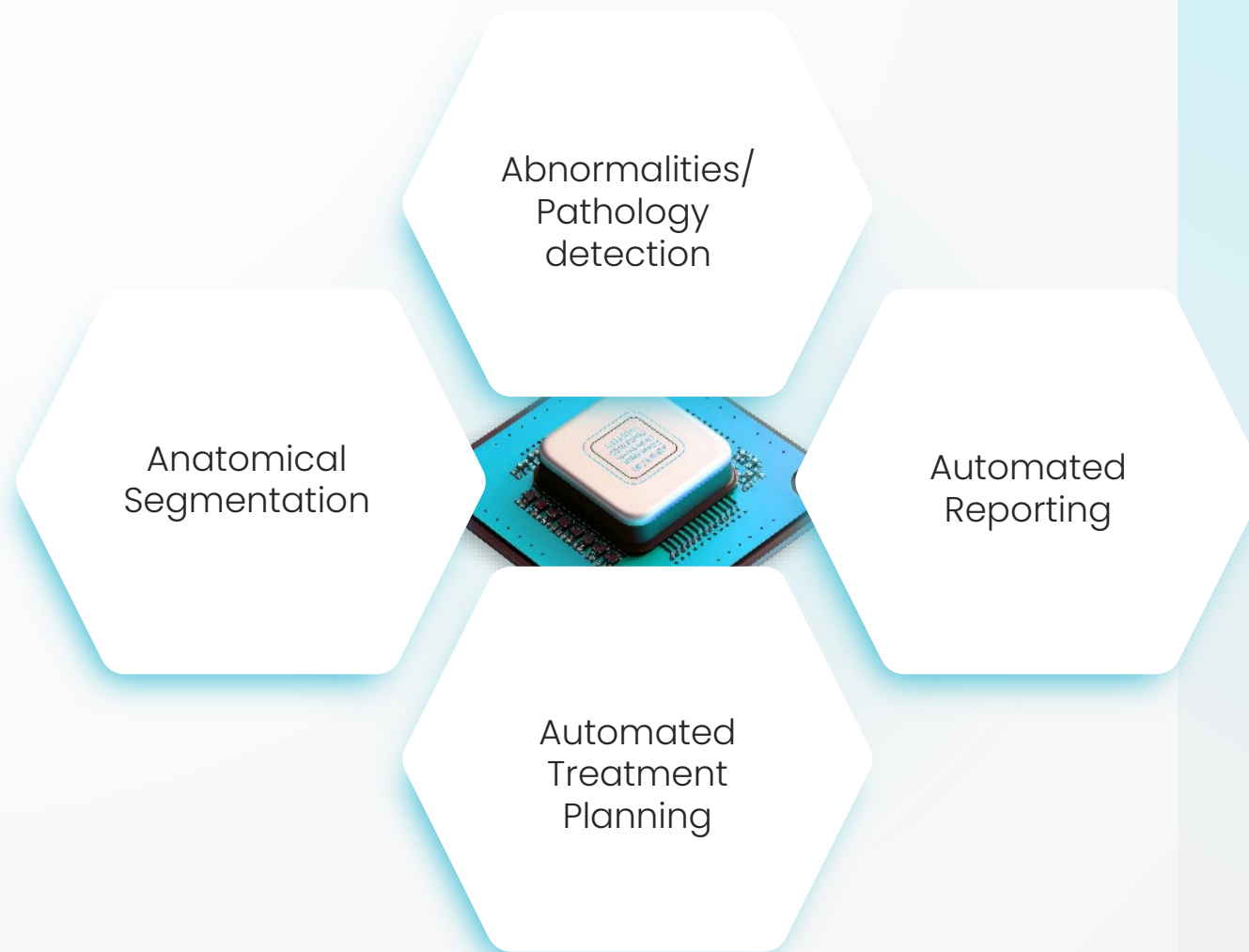


Global Disease Costs, 2023



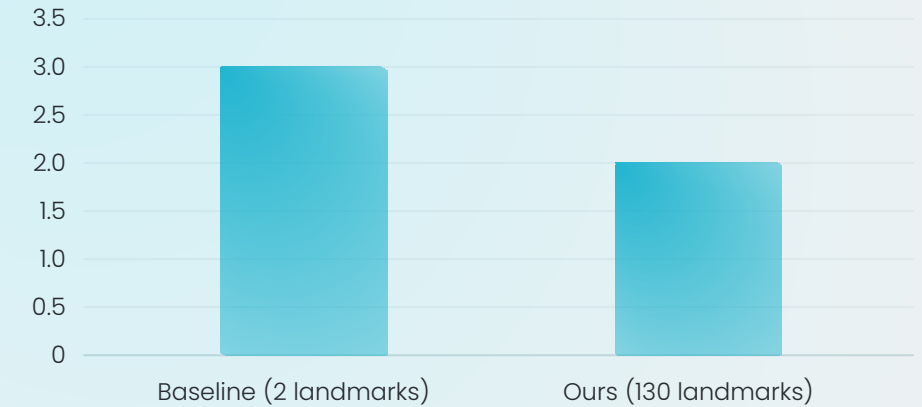
Study shows Dental disease can lead to Heart Disease, Diabetes, Alzheimer's

Our Solutions

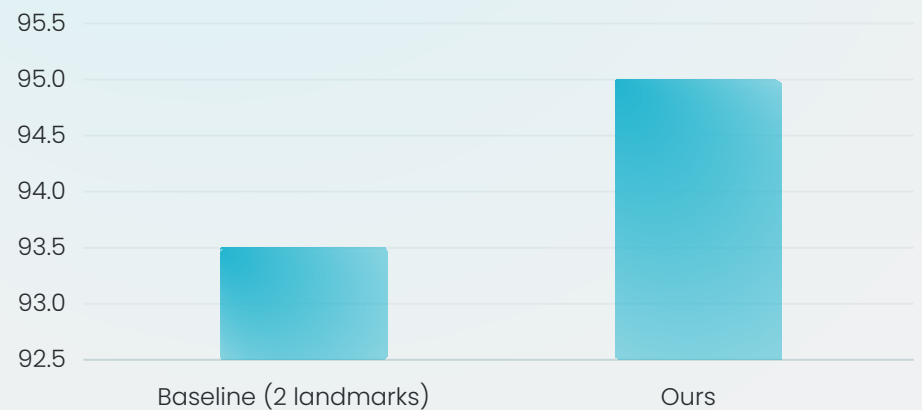


Segmenting 130 bony structures in the Skull

Running Time (minutes)



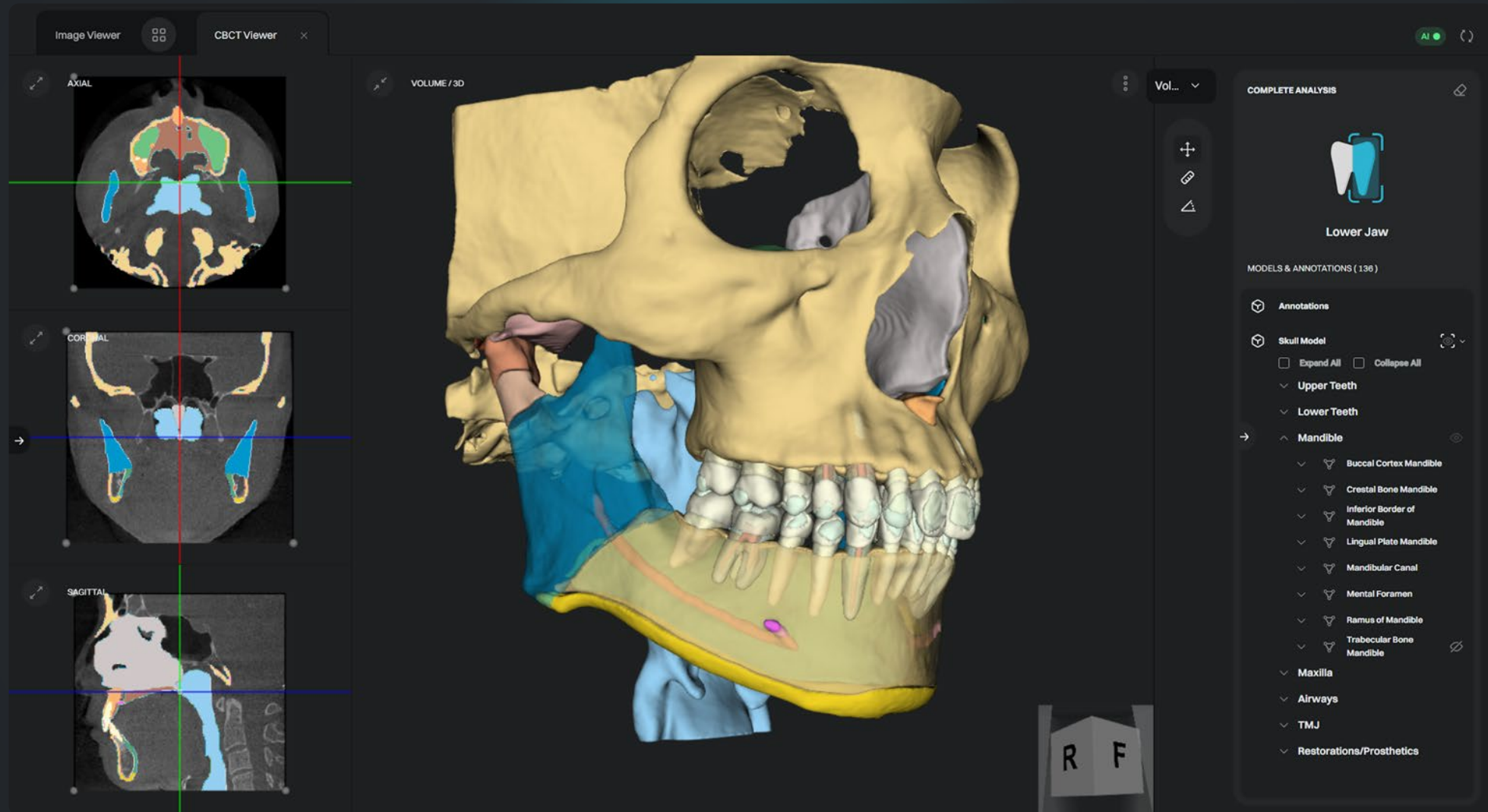
Dice Score



Liu Q, Deng H, Lian C, Chen X, Xian D, Ma L, Chen X, Kuang T, Gateno J, Yap PT, Xia JJ. SkullEngine: A Multi-Stage CNN Framework for Collaborative CBCT Image Segmentation and Landmark Detection. Mach Learn Med Imaging. 2021 Sep;12966:606-614

Video Demo

DEMONSTRATION SEGMENTATION



DISEASE DETECTION



Bridging the Gaps

Increased
Accuracy and
Efficient Analysis

Enhanced Patient
Communication

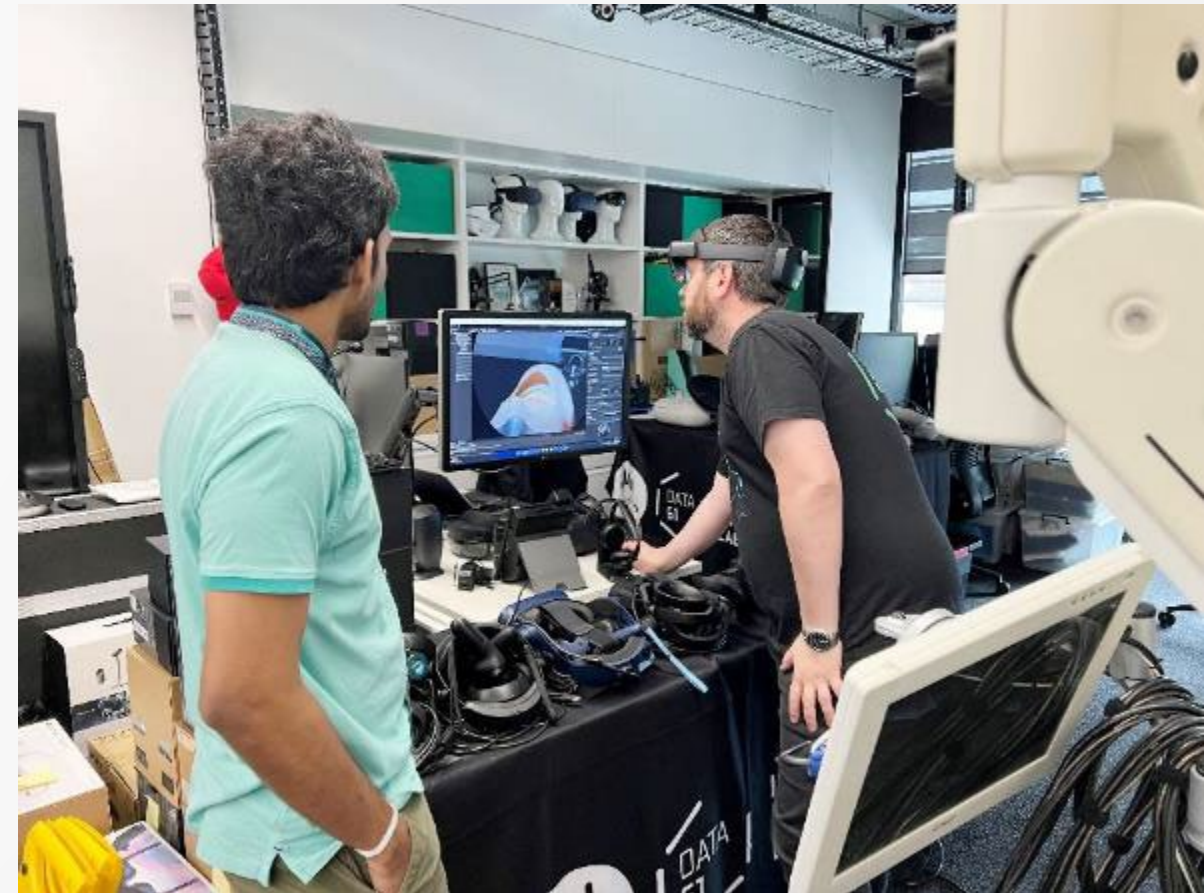
Accessibility to Expertise



Consistency and
Standardisation

Cost Savings

The Future



OUR AWARDS AND GRANTS



NSW Winner

Business and Industry Solution



NSW Merit Recipient

Technology Platform



National Merit Award

Business and Industry Solution



National Merit Award

Technology Platform



User Testimonials Demonstrating Impact



"Revolutionised patient education and compliance"

– Dr Fidel Doan



"Impressed by precision, clarity, and speed"

– Dr Ian Shee



"Significant improvement in diagnostic accuracy"

– Dr Shahram Haghiri.



"Enabled treatment of difficult cases with confidence"

– Dr Kon Souksay.



"Improved efficiency and patient comfort in treatments"

– Dr Niranjan Gangaiah.

Clinicians

Radiologists

**X-ray
manufacturers**

How can you get involved?

Government

**Strategic
Investors**

**Educational
Institutions**

Find Us At:

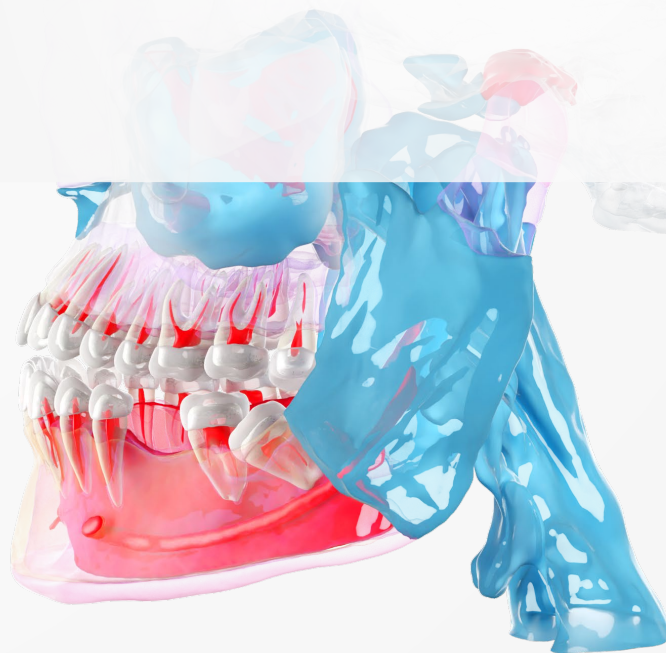


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ANY QUESTIONS?



Current Applications of AI

CONSUMER-FACING

CLINICAL

PROFESSIONAL-FACING

NON-CLINICAL

