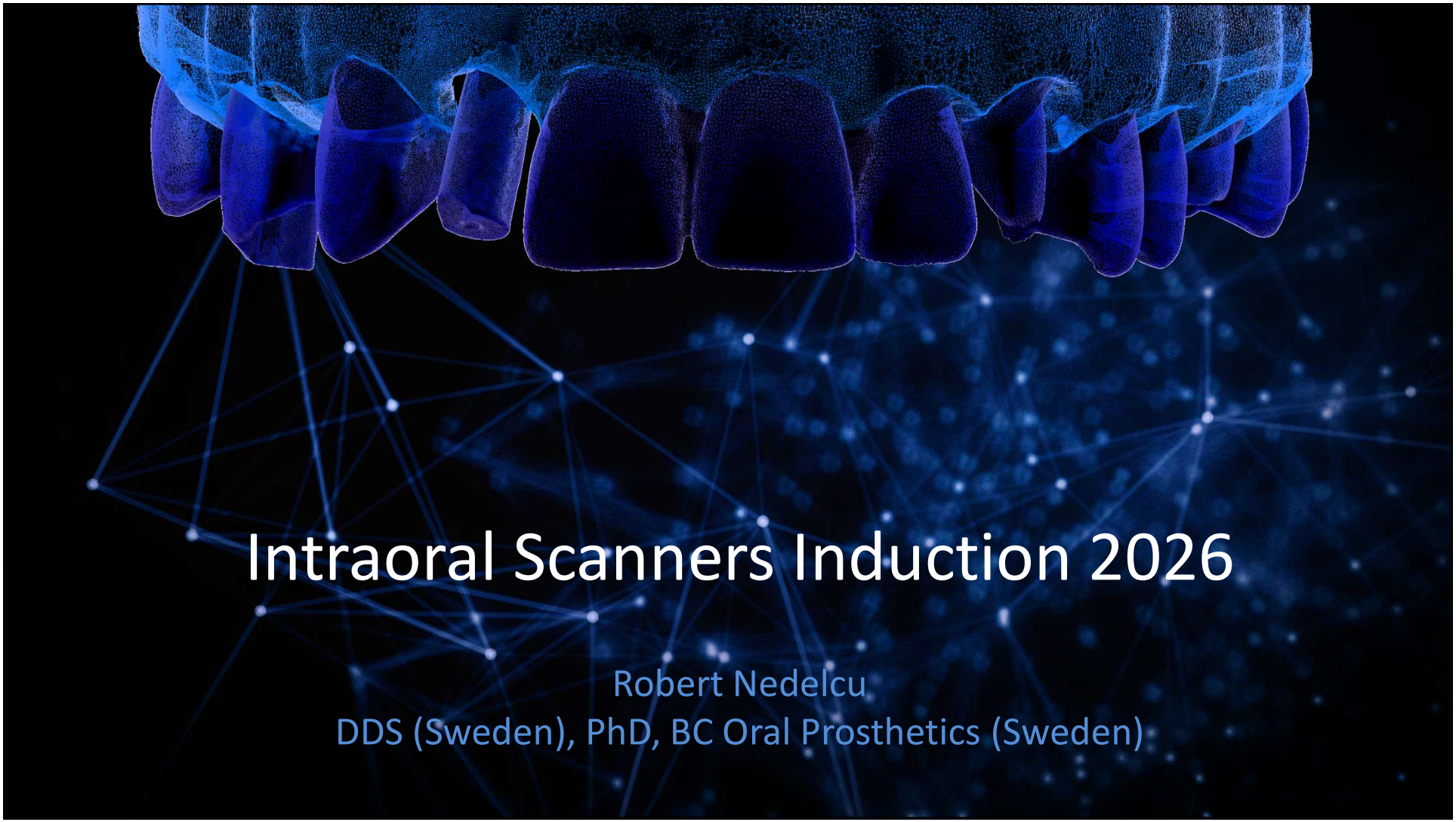


Intraoral Scanners Induction 2026

Robert Nedelcu
DDS (Sweden), PhD, BC Oral Prosthetics (Sweden)

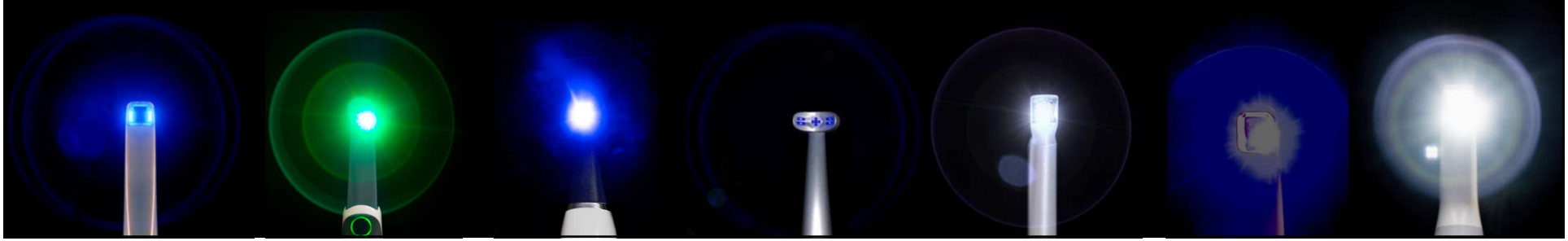
3M Lava COS
2008

3M Lava COS
2010

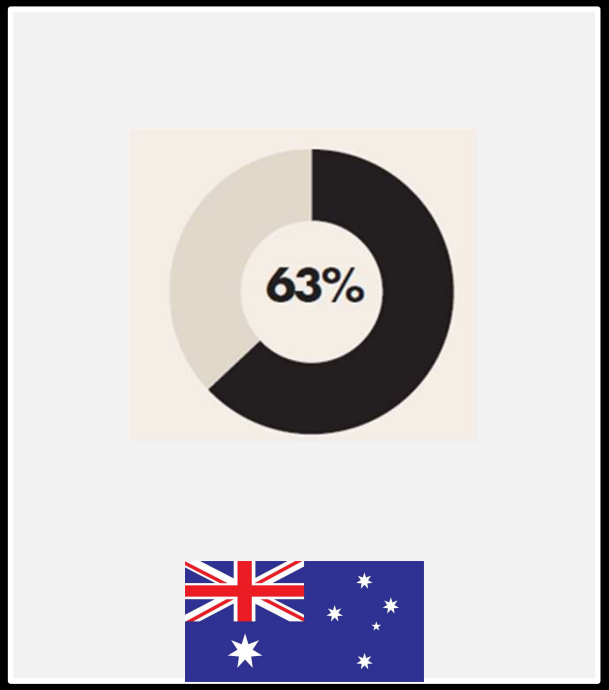
3Shape Trios Wireless
2018

Technology

- Triangulation LED
- Triangulation RGB
- Confocal Microscopy
- Parallel Confocal



IOS Market Penetration



UWA DMD4 research: Liam Meinema, David Hora, Peter Nguyen

OHCWA scanners

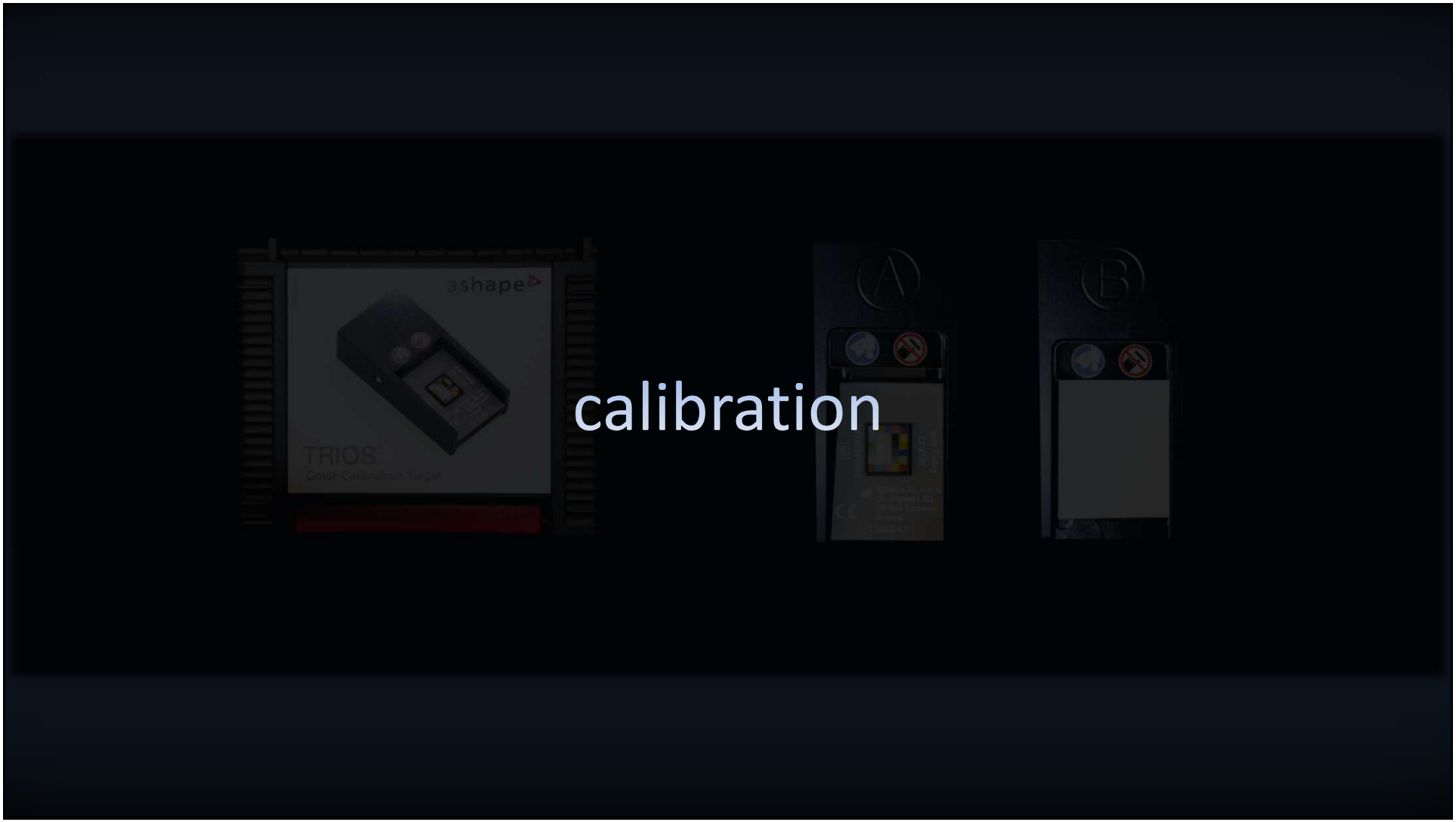
3shape

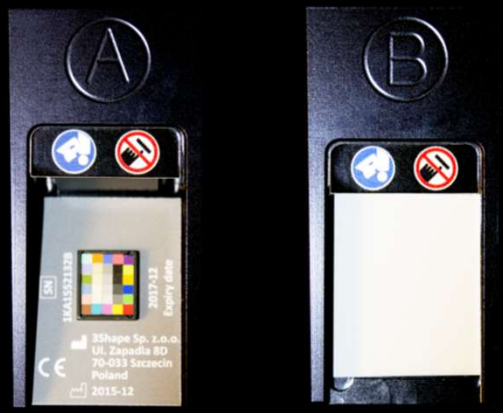
Trios 3 – Modded
CSSL

Trios 4
student clinics

Trios 5
student clinics

closed ecosystem

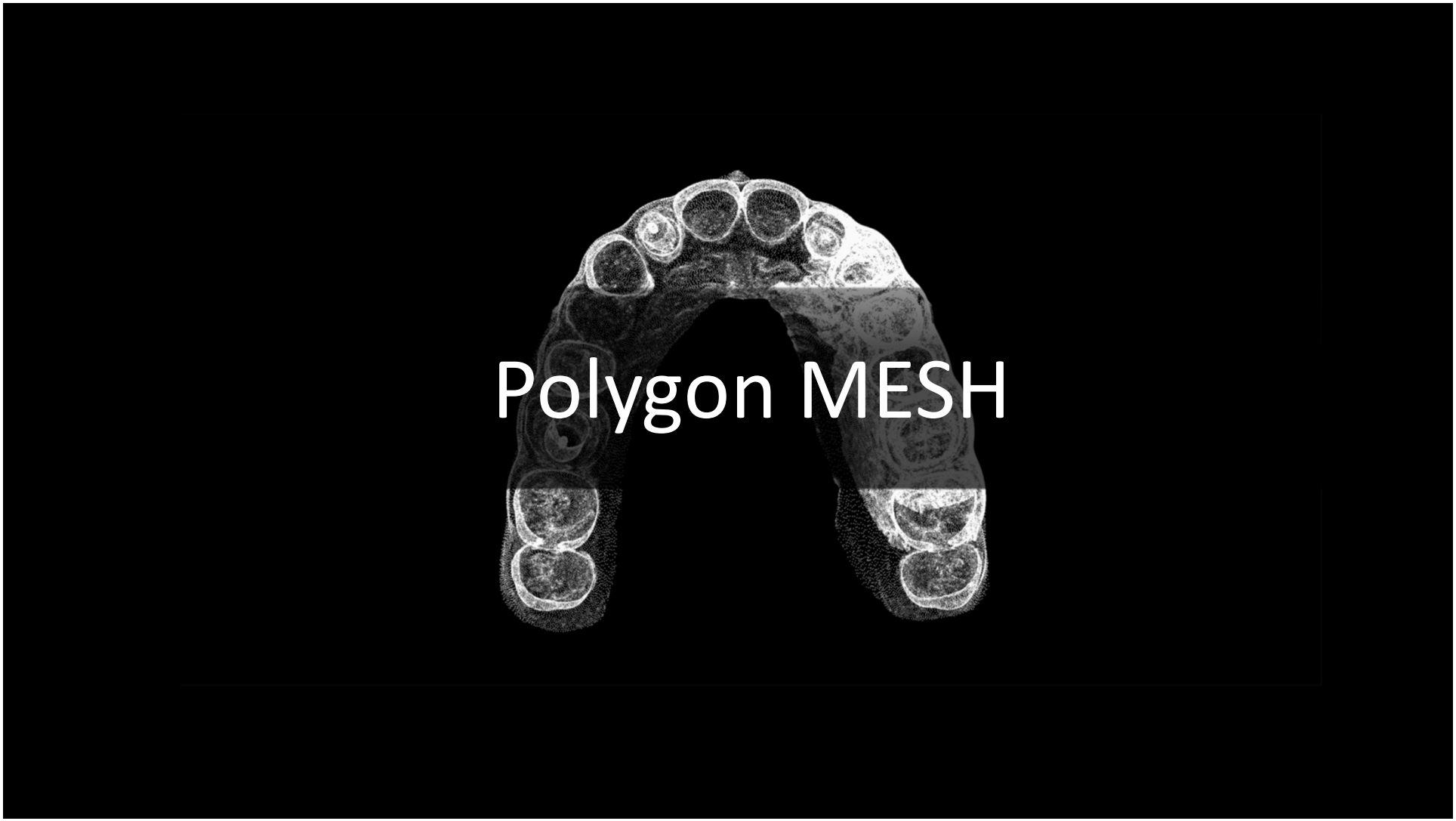

3shape
TRIOS
Color Calibration Target
calibration

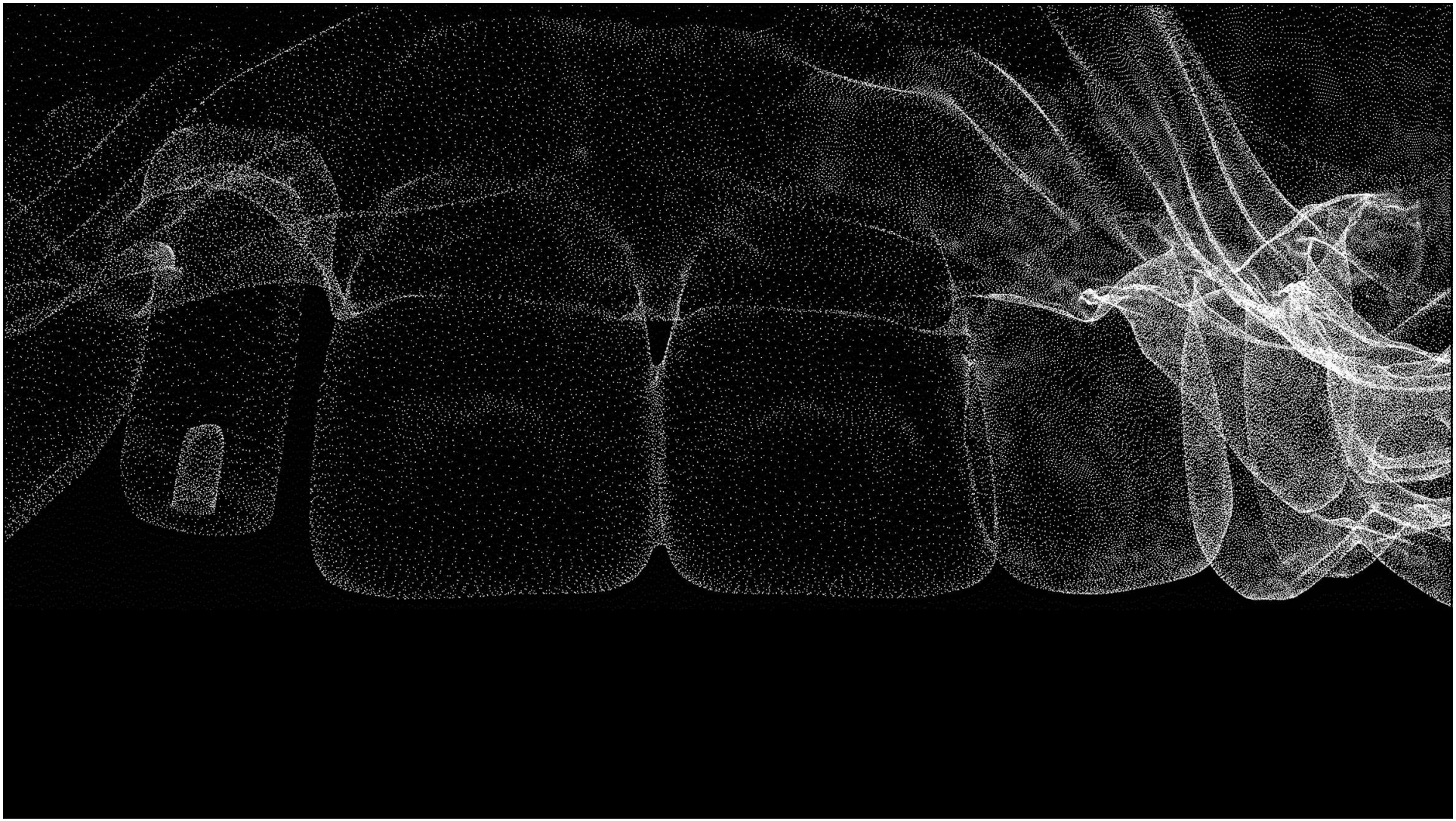


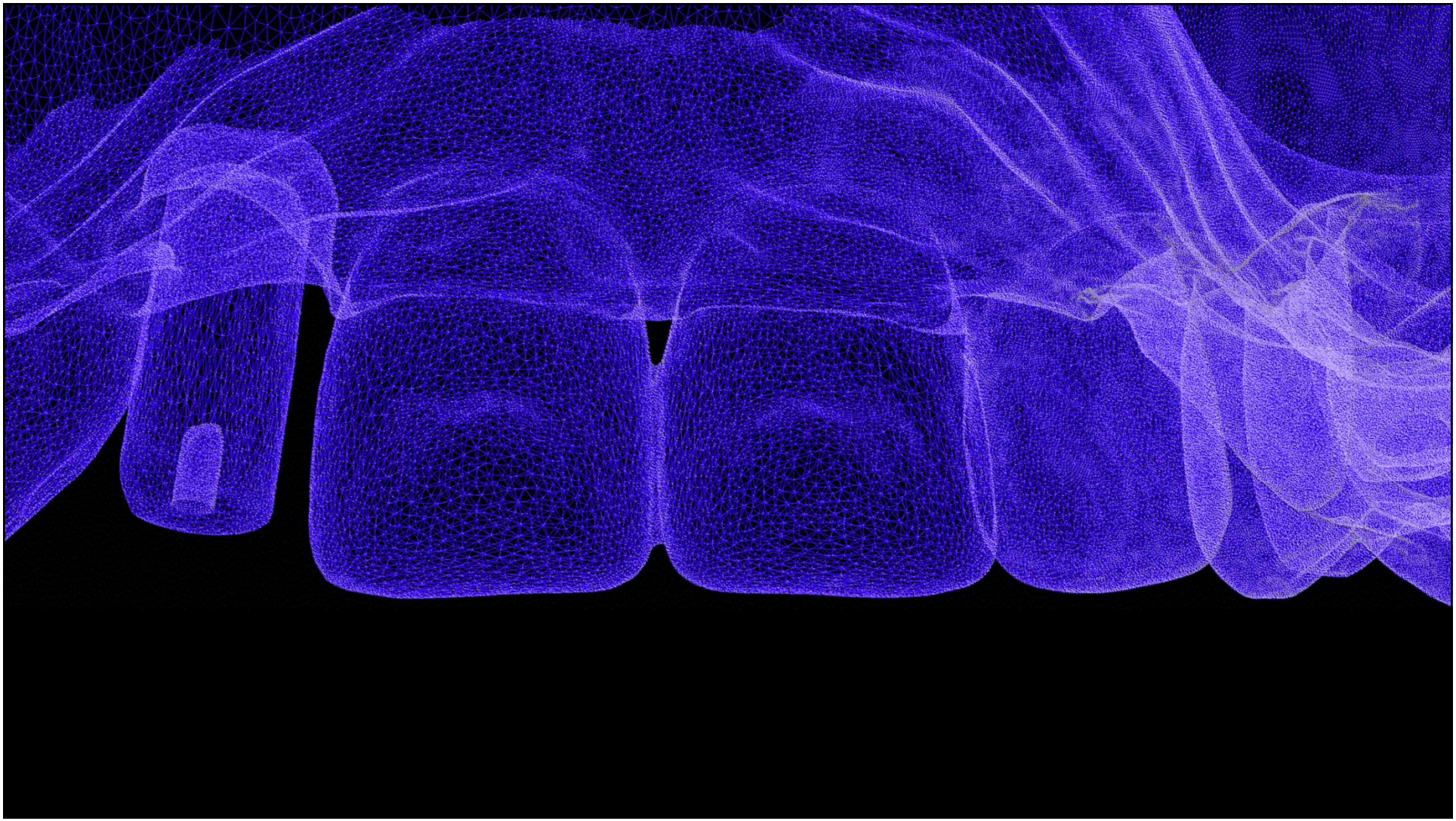
Trios 3: Accuracy Calibration & Colour Calibration
Trios 4: Colour Calibration
Trios 5: Self-Calibration

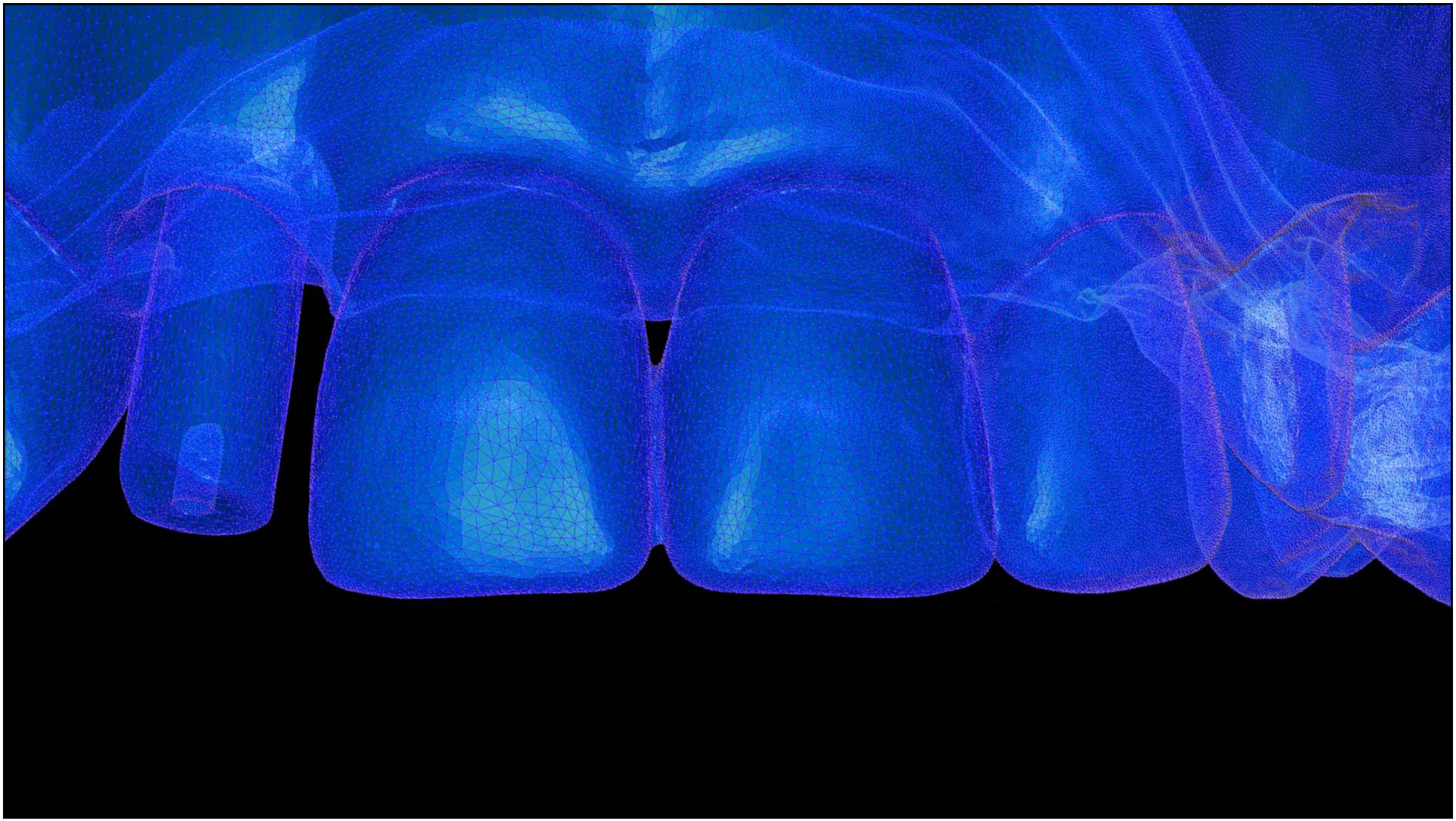
scanning | speed

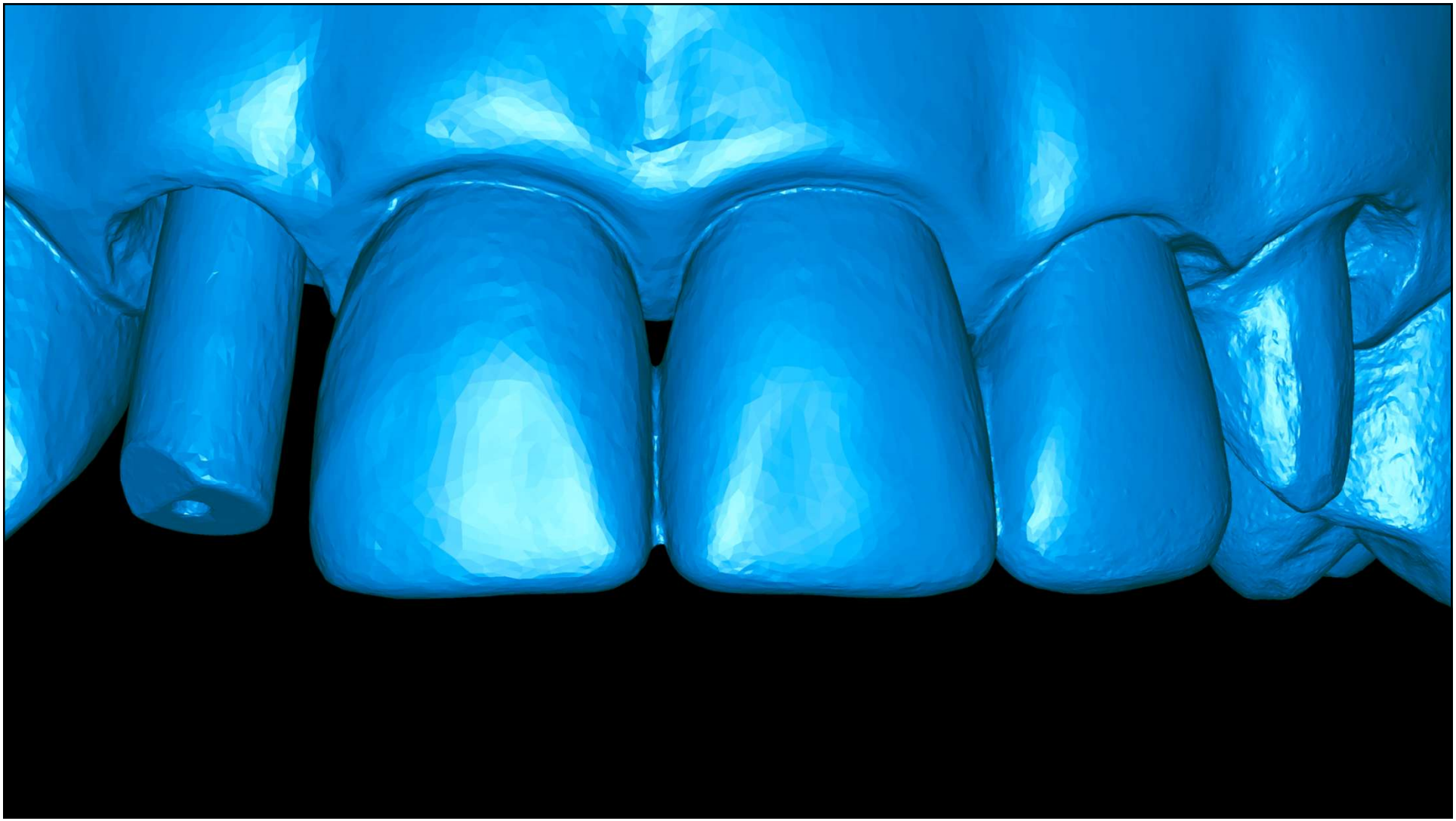
scanning | speed

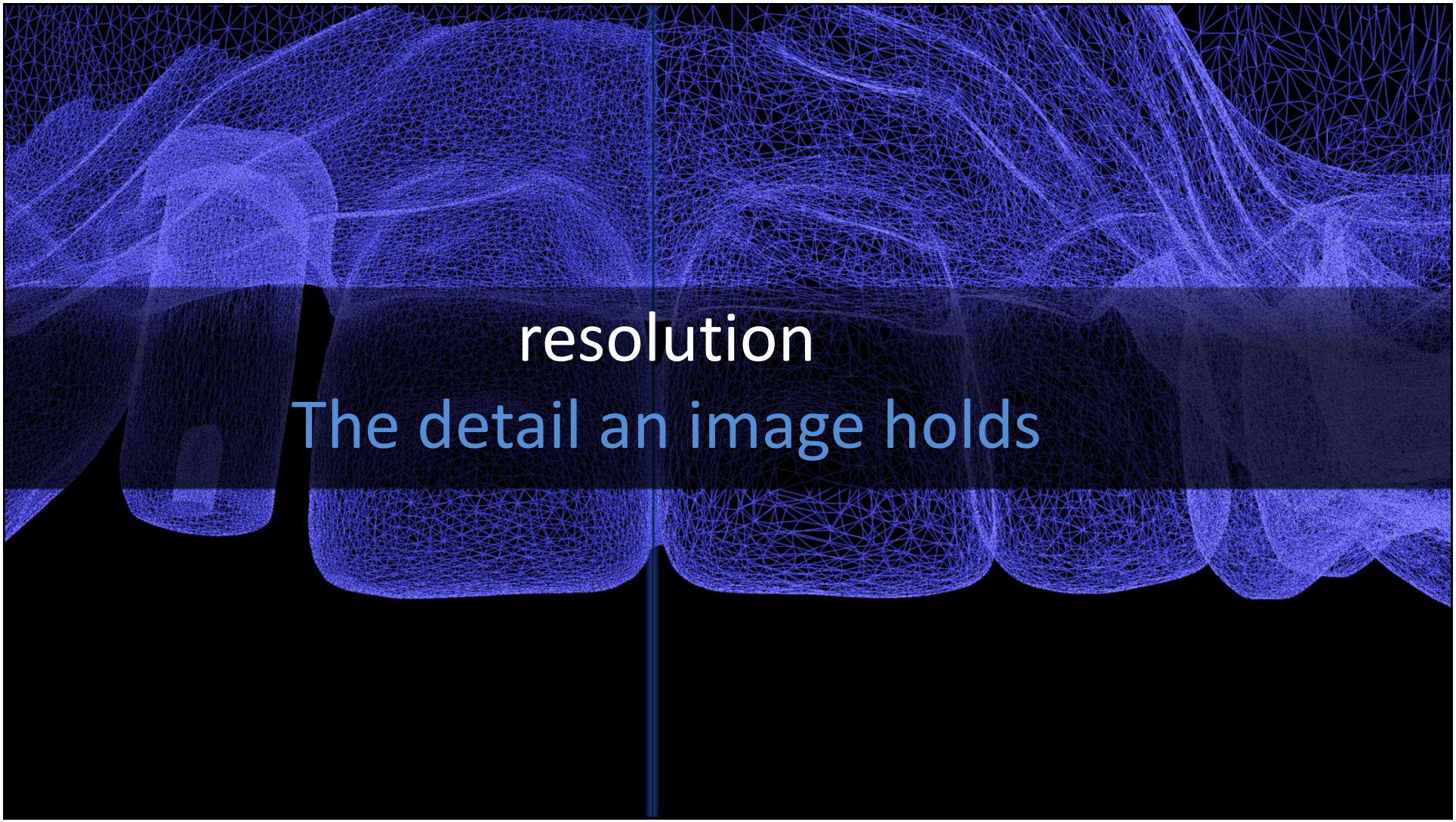

Polygon MESH

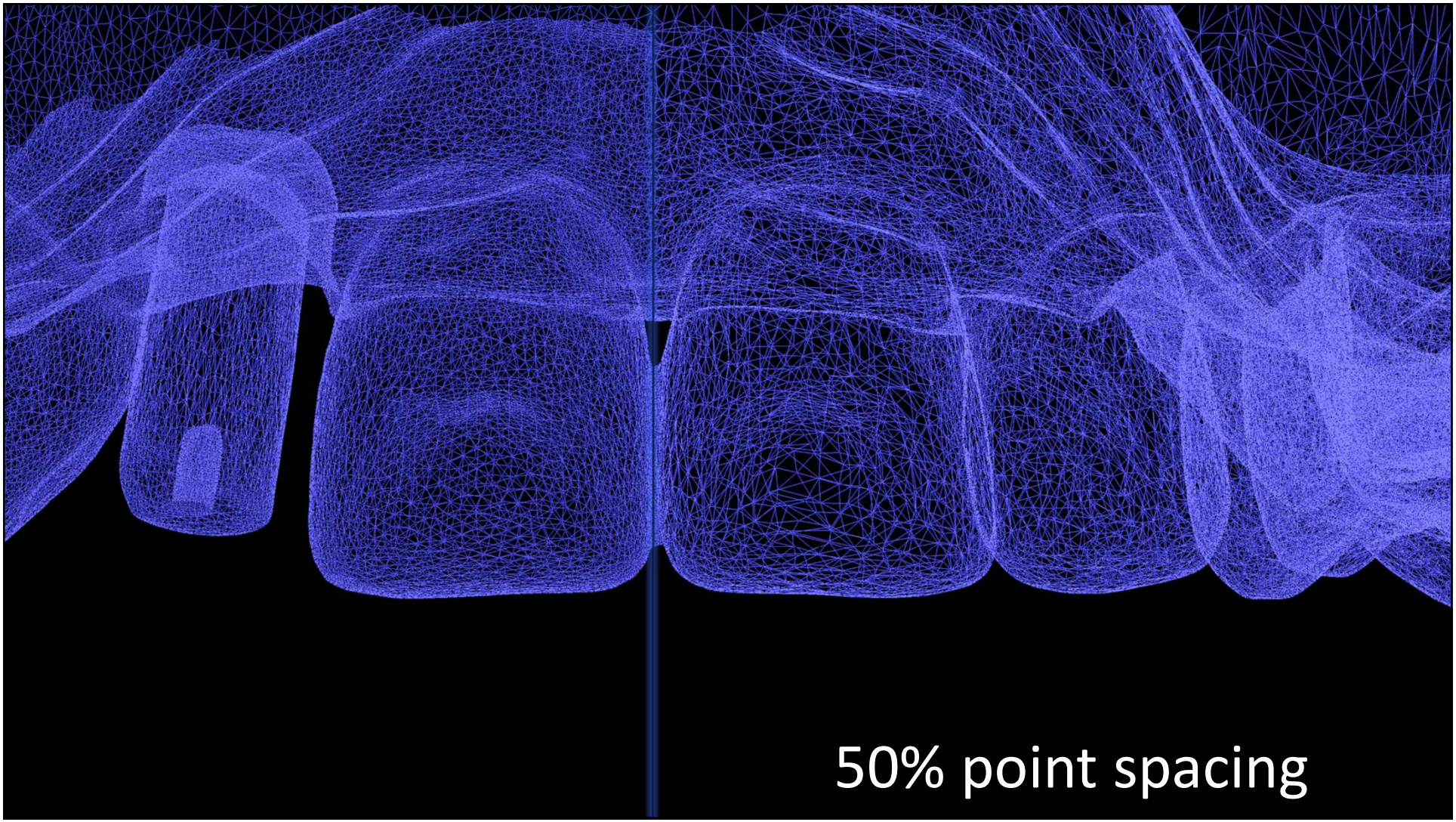


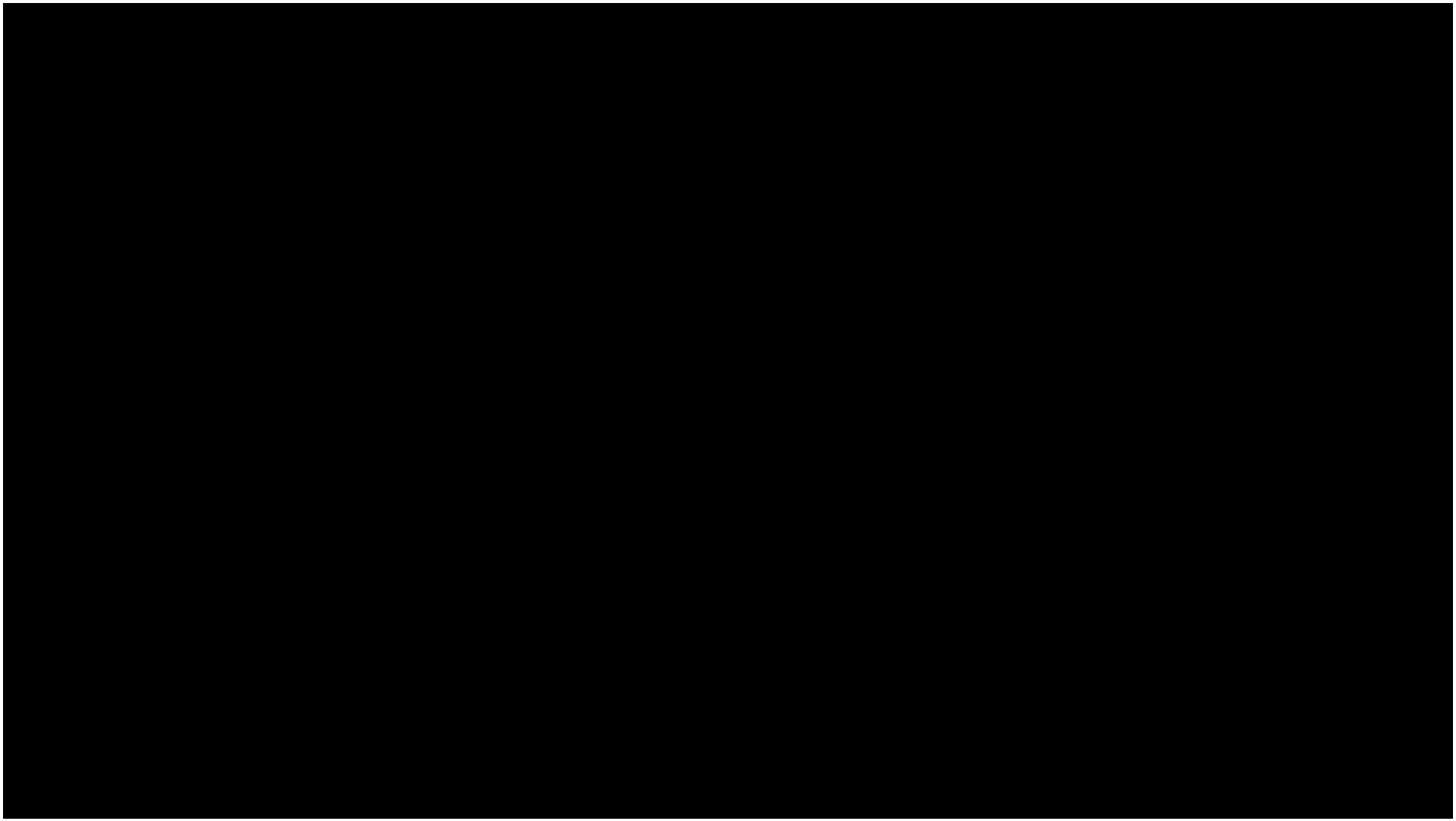


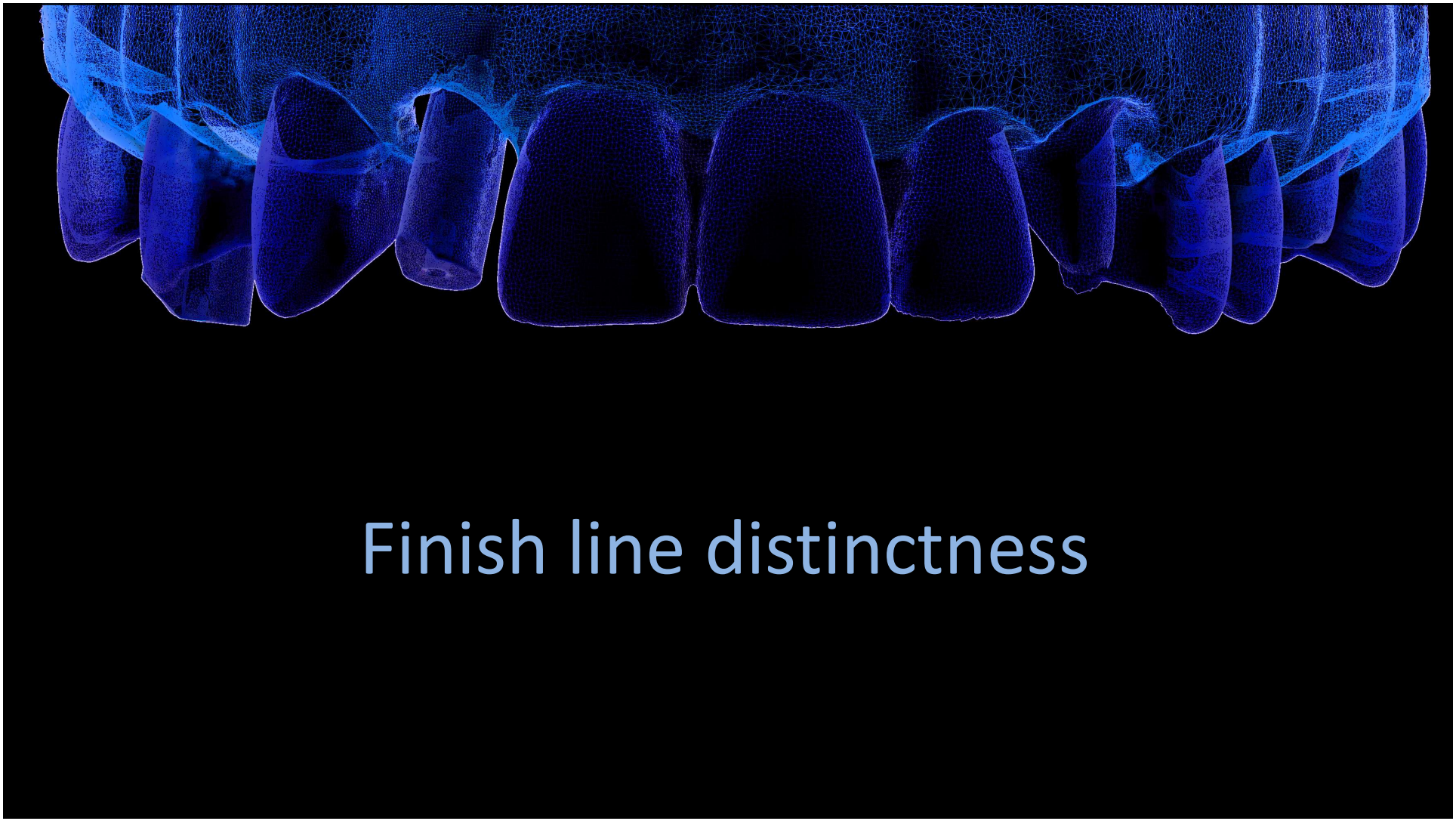


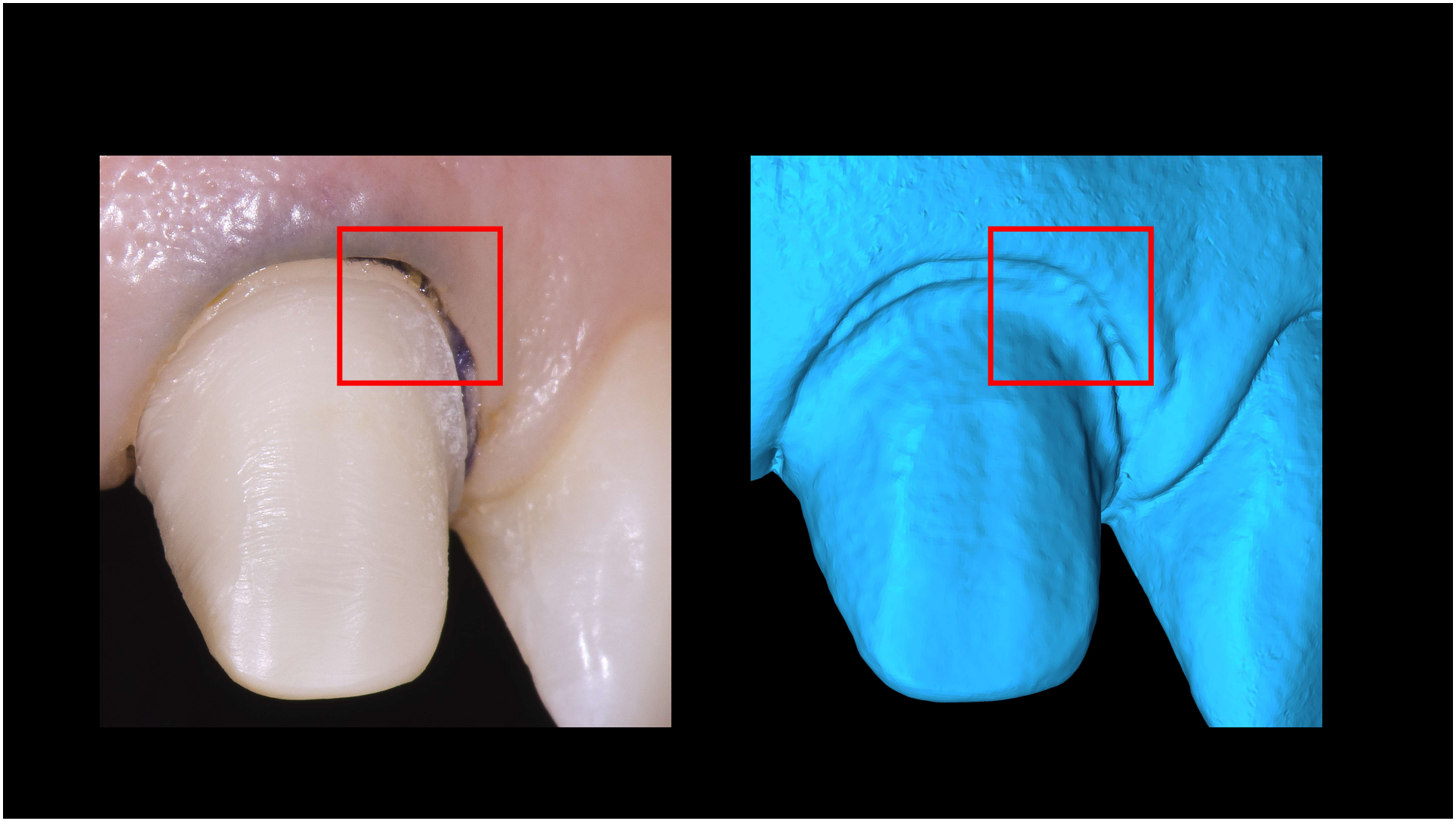


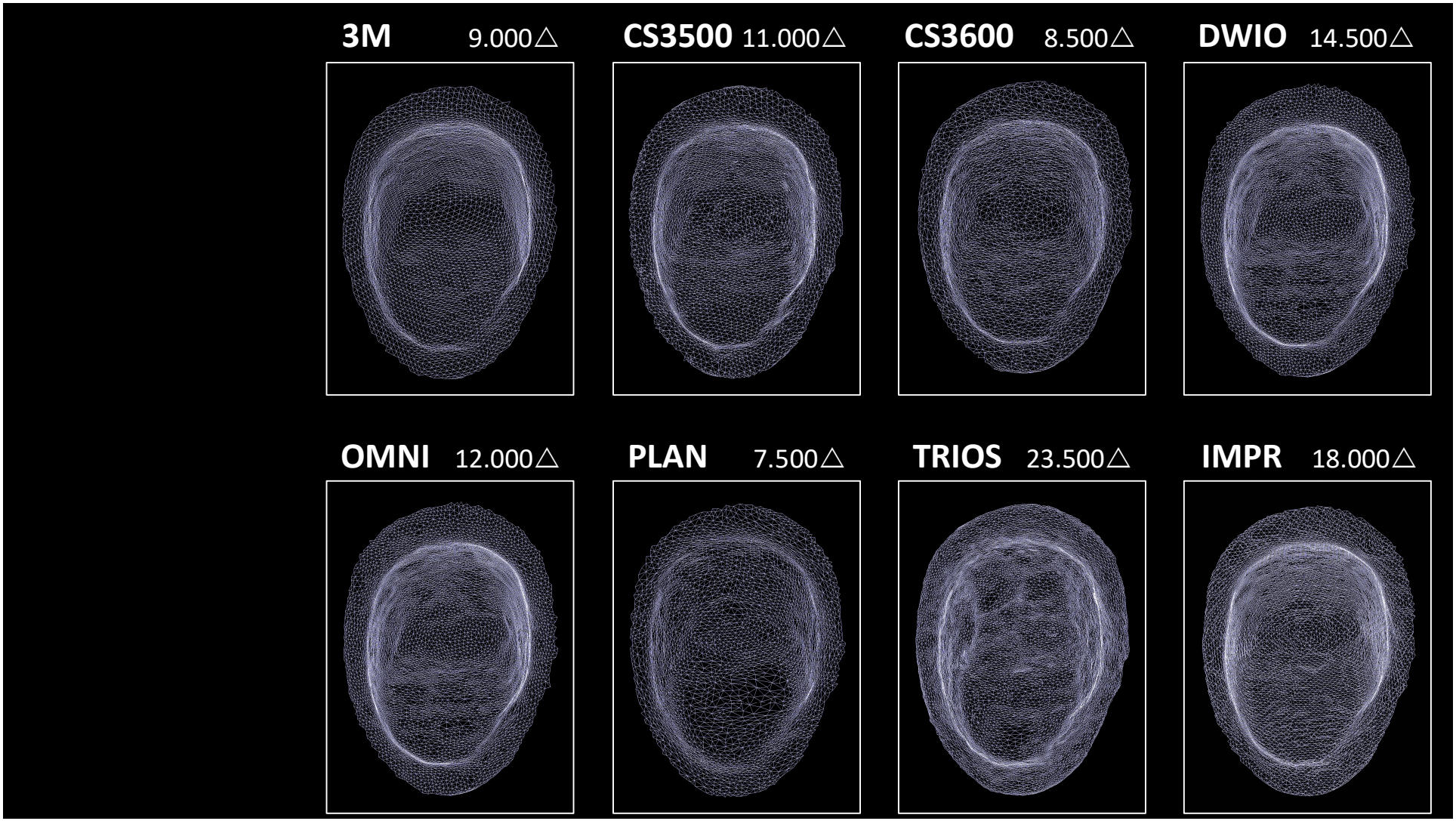

resolution
The detail an image holds

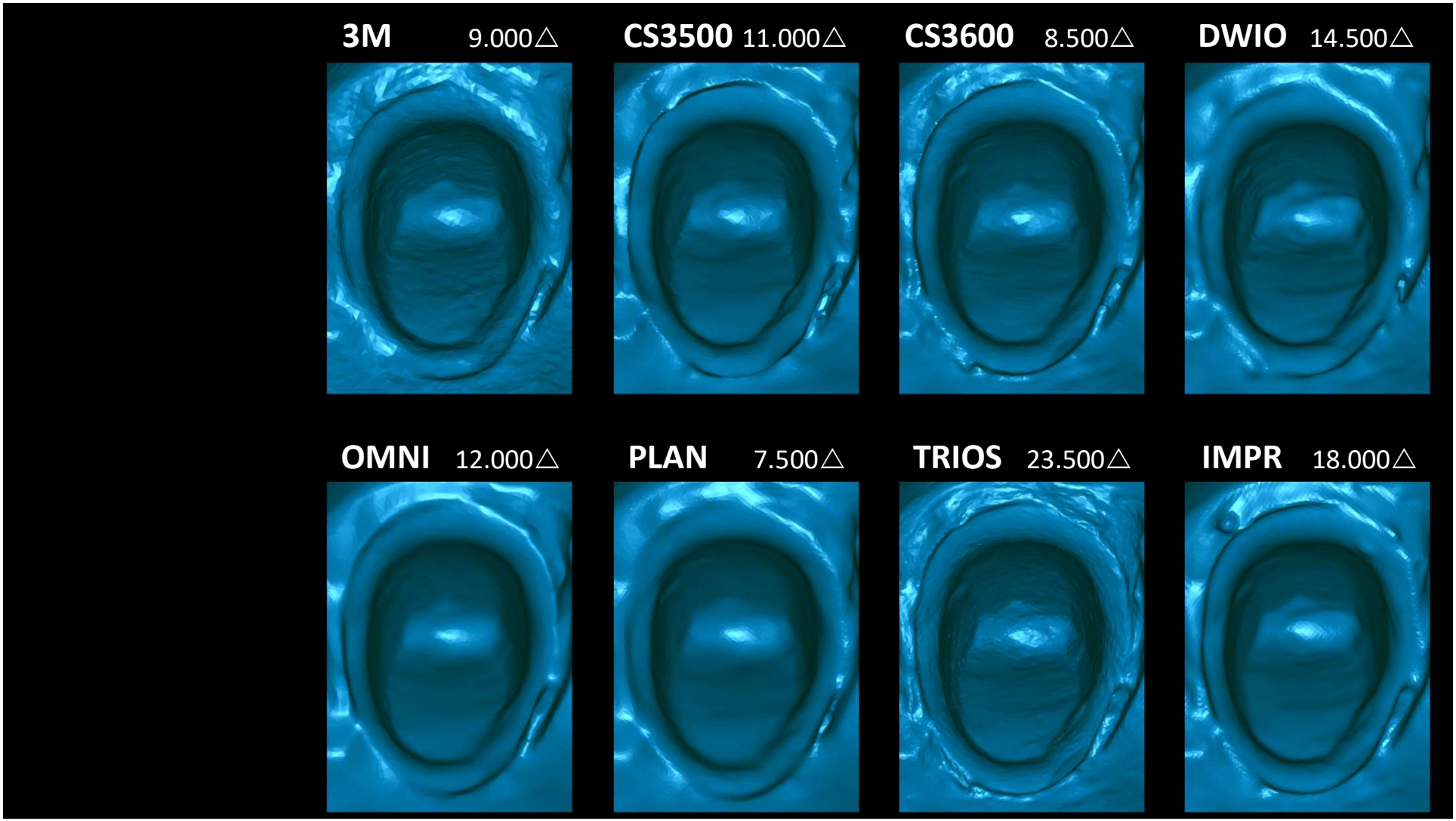

50% point spacing




Finish line distinctness




3M 9.000△
CS3500 11.000△
CS3600 8.500△
DWIO 14.500△
OMNI 12.000△
PLAN 7.500△
TRIOS 23.500△
IMPR 18.000△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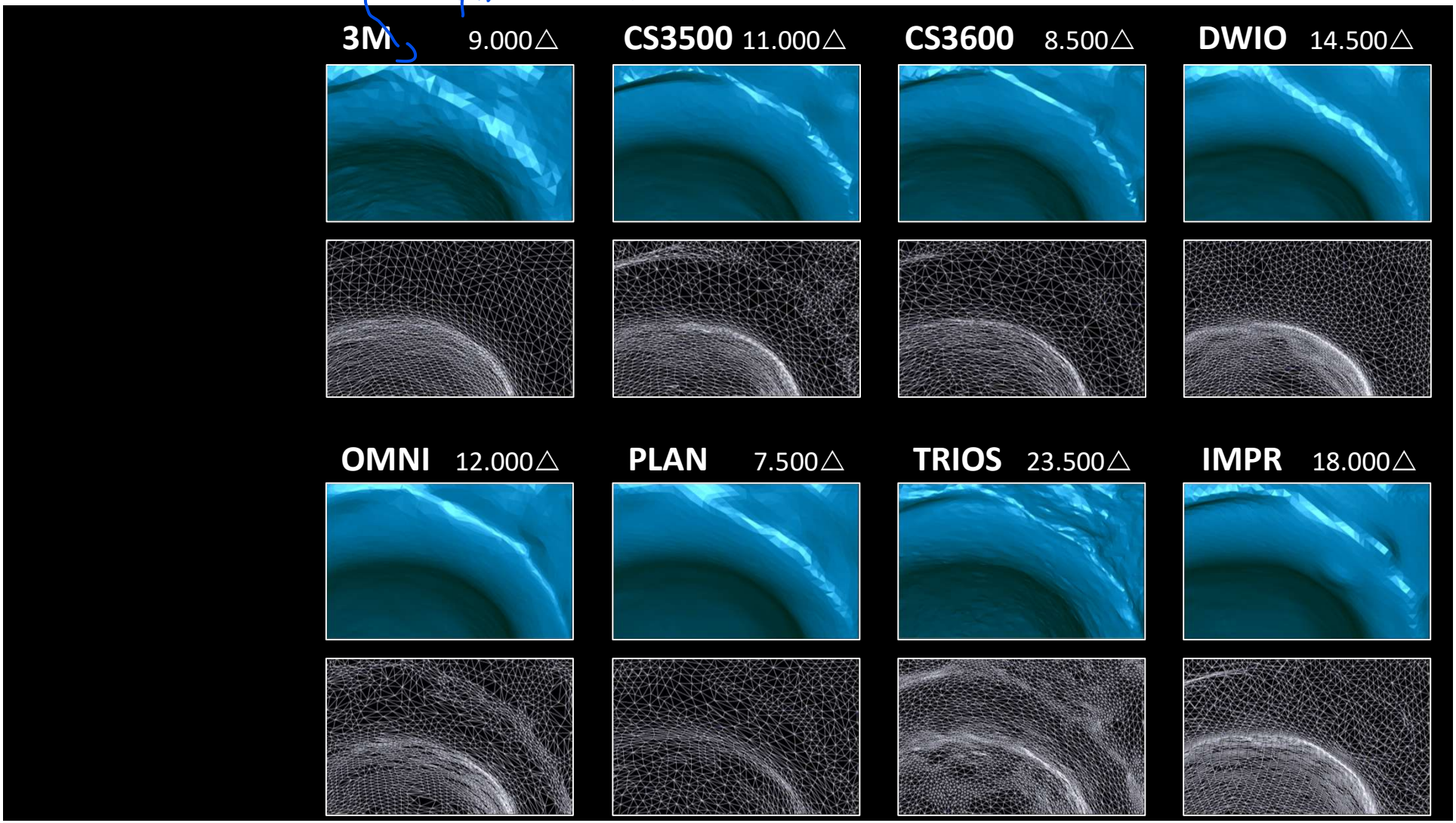
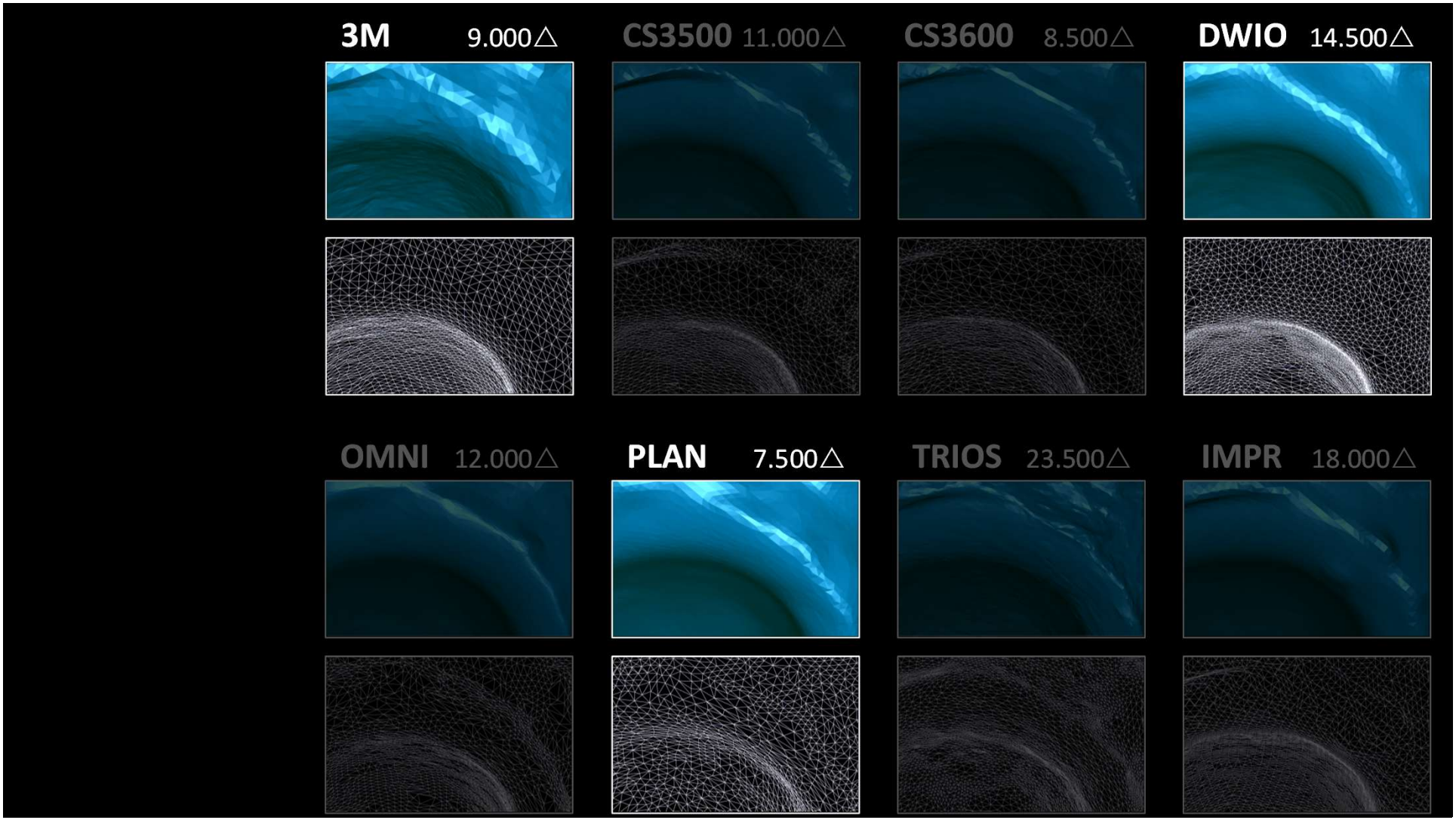
CS3500 11.000△
CS3600 8.500△
DWIO 14.500△
OMNI 12.000△
PLAN 7.500△
TRIOS 23.500△
IMPR 18.000△

hard to see finish line

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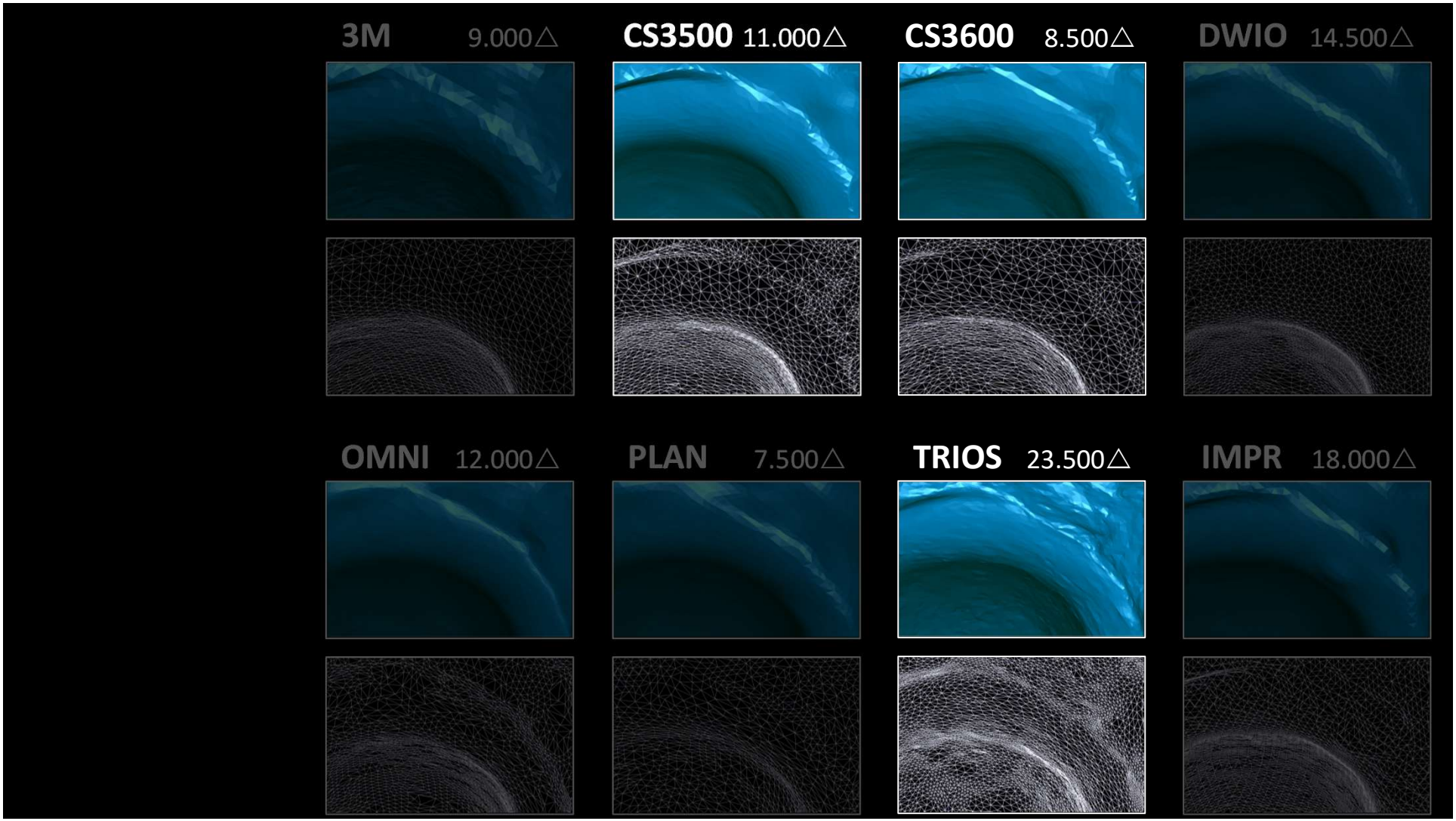
DWIO 14.500△
OMNI 12.000△
PLAN 7.500△
TRIOS 23.500△
IMPR 18.000△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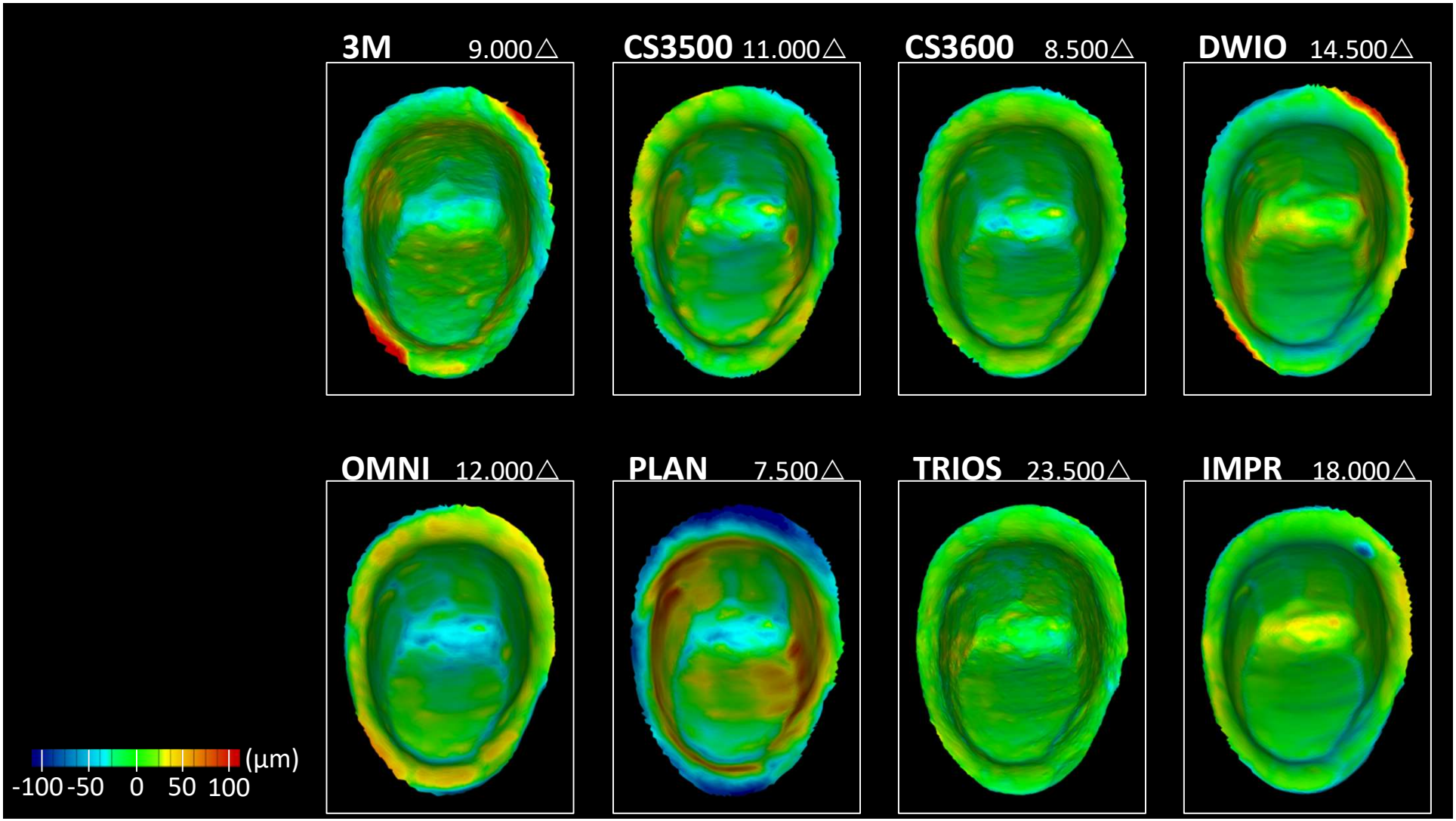
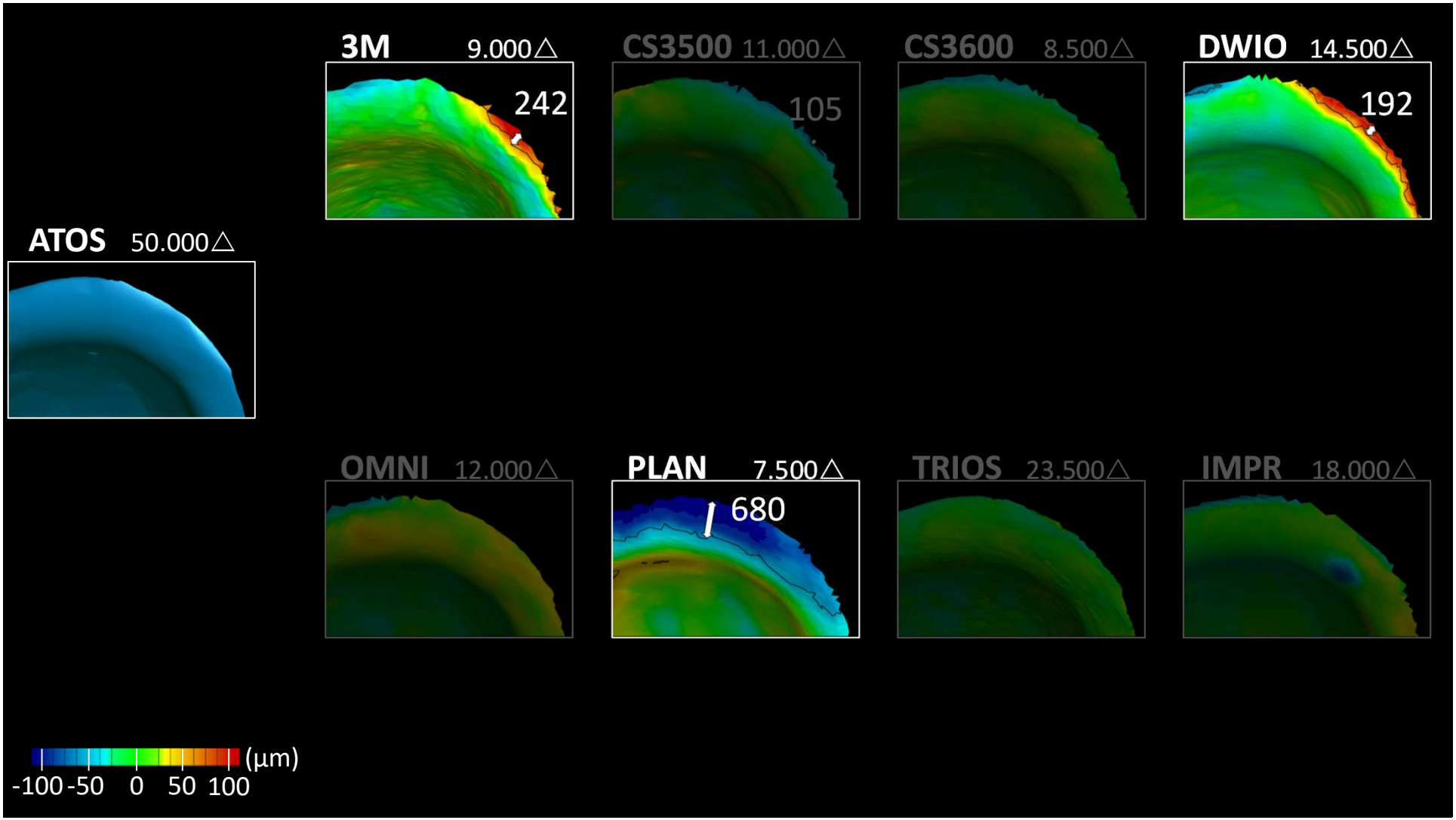
CS3500 11.000△
CS3600 8.500△
DWIO 14.500△
OMNI 12.000△
PLAN 7.500△
TRIOS 23.500△
IMPR 18.000△


3M 9.000△
CS3500 11.000△
CS3600 8.500△
DWIO 14.500△
OMNI 12.000△
PLAN 7.500△
TRIOS 23.500△
IMPR 18.000△
(μm)
-100 -50 0 50 100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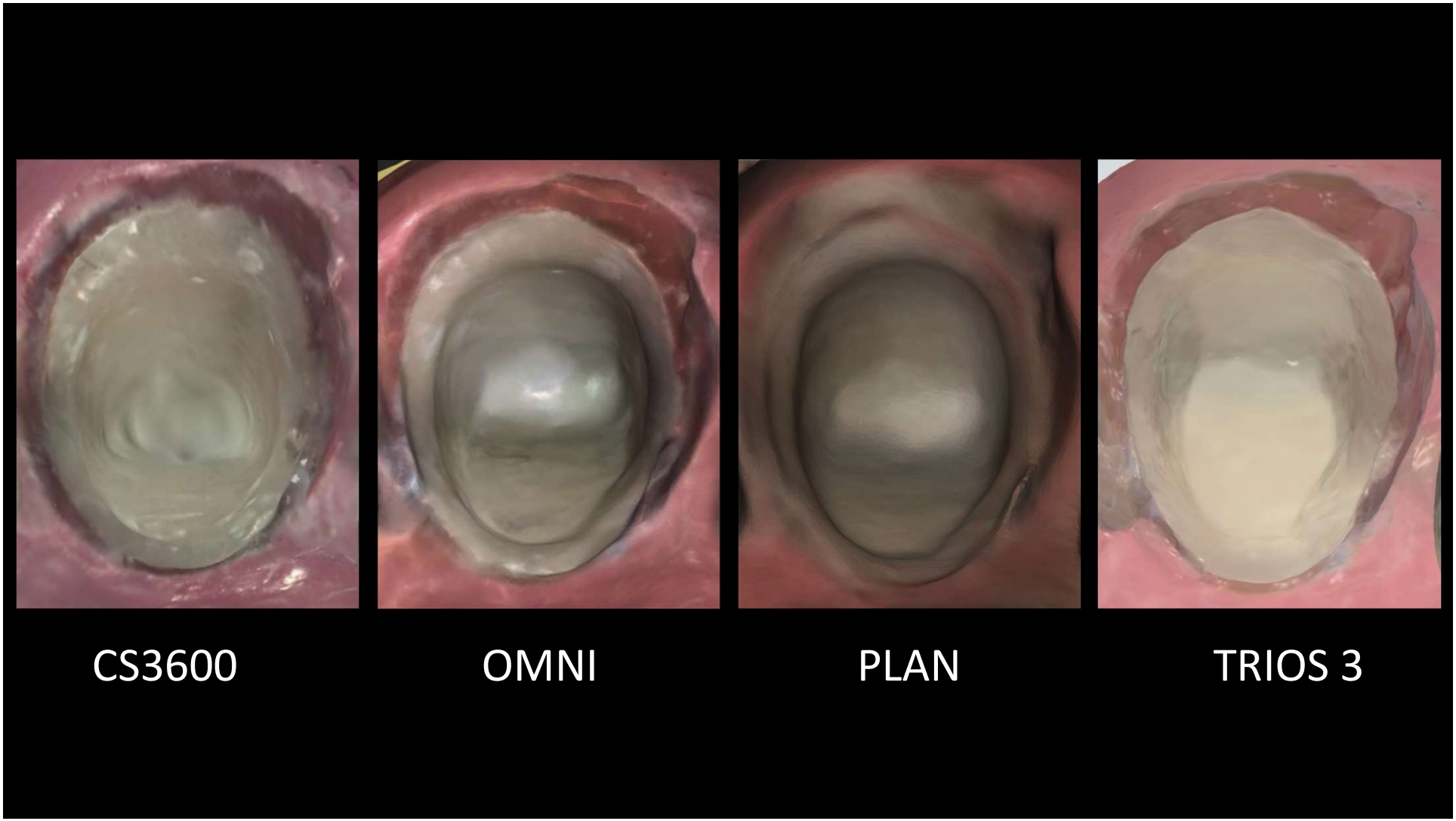
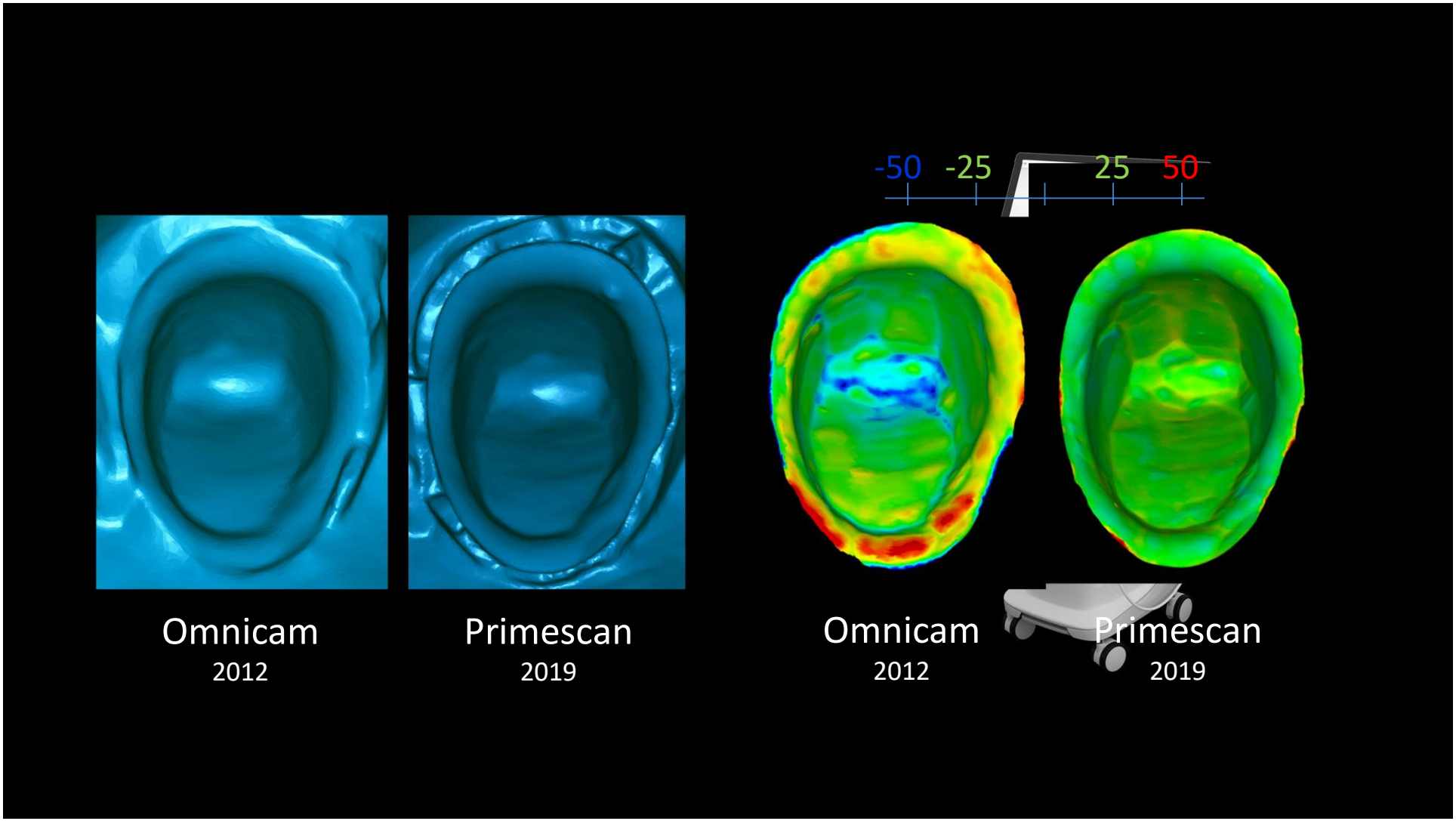
242
CS3500 11.000△
105
CS3600 8.500△
DWIO 14.500△
192
ATOS 50.000△
OMNI 12.000△
PLAN 7.500△
680
TRIOS 23.500△
IMPR 18.000△
(μm)
-100 -50 0 50 100

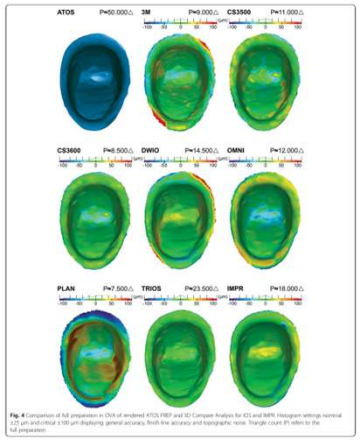

CS3600
OMNI
PLAN
TRIOS 3

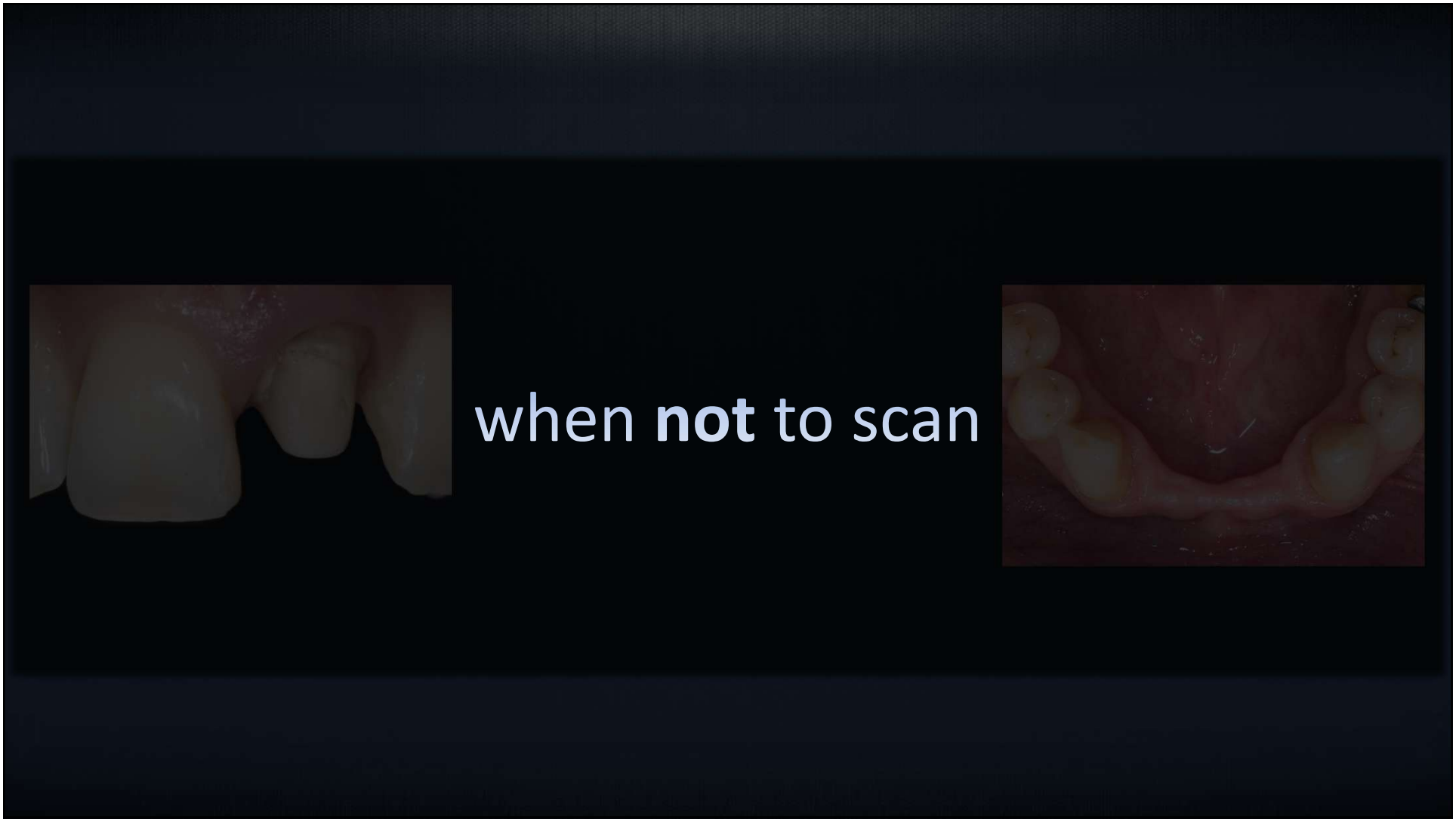

-50
-25
25
50
Omnicam
2012
Primescan
2019
Omnicam
2012
Primescan
2019

Finish line distinctness and accuracy in 7 intraoral scanners versus conventional impression: an in vitro descriptive comparison

Robert Nedelcu [1], Pontus Olsson [2], Ingela Nyström [2], Andreas Thor [3]

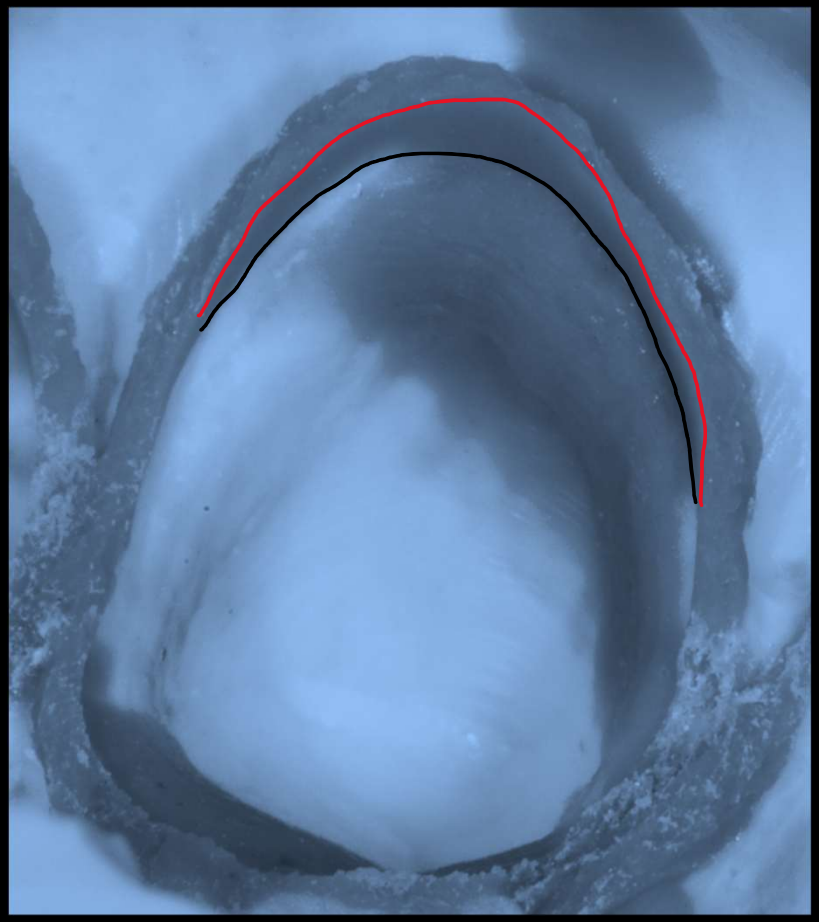
”It is imperative that clinicians critically evaluate the digital impression, being aware of varying technical limitations among IOS, in particular when challenging subgingival conditions apply.”




when **not** to scan

subgingival finish line

↳ you want finish + emergence profile + root surface anatomy

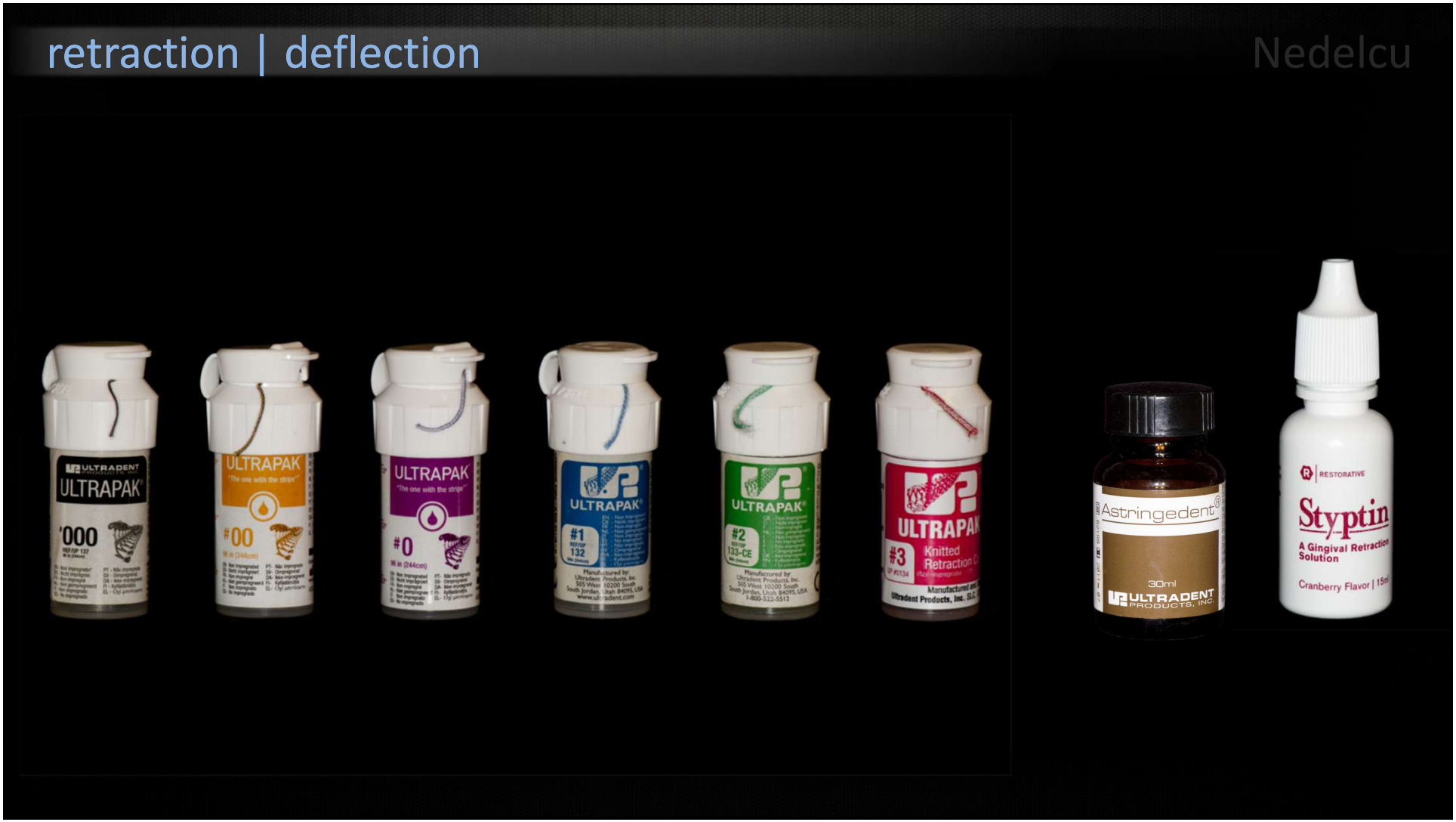


subgingival finish line

Nedelcu

retraction | deflection

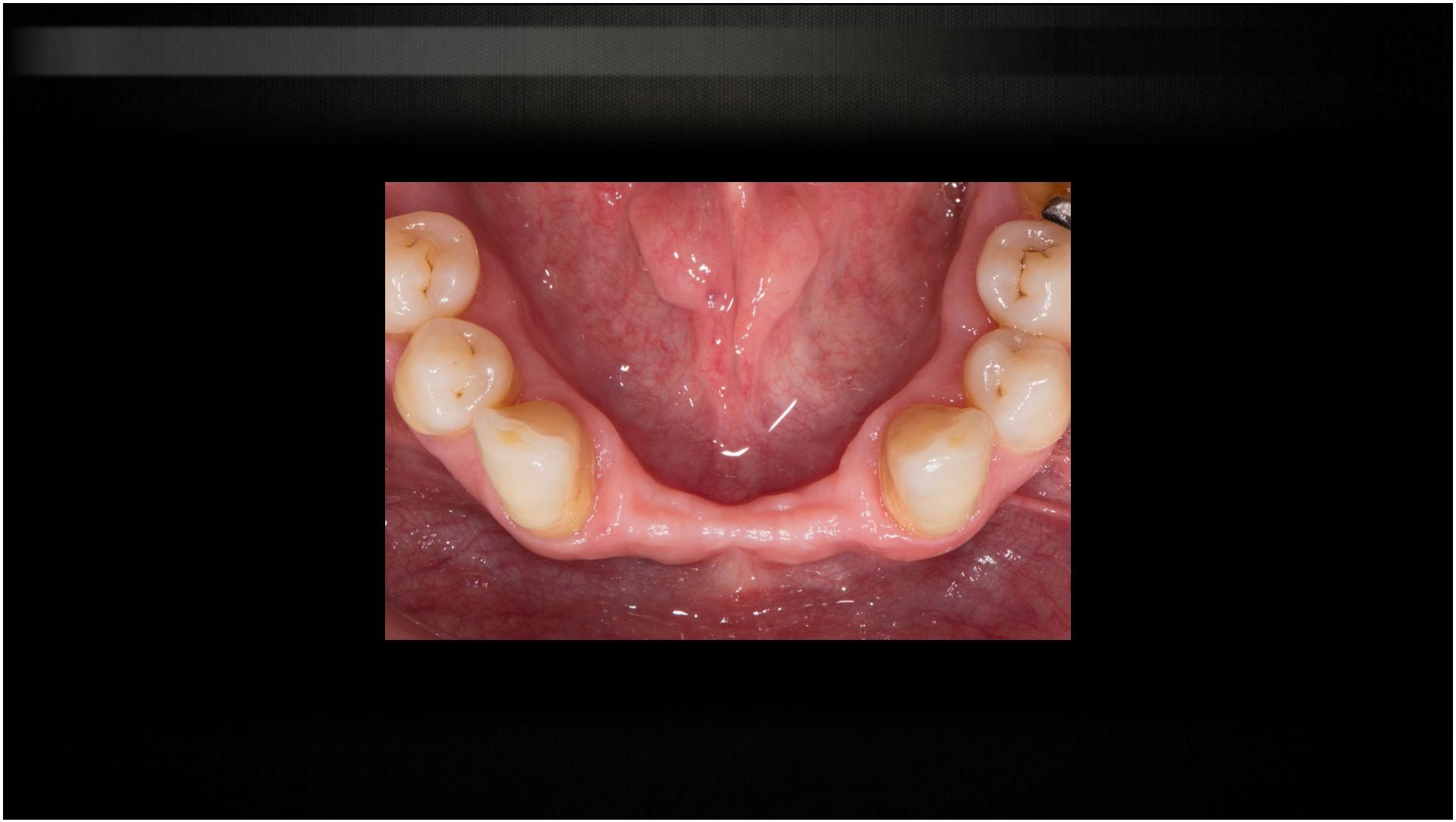
Nedelcu

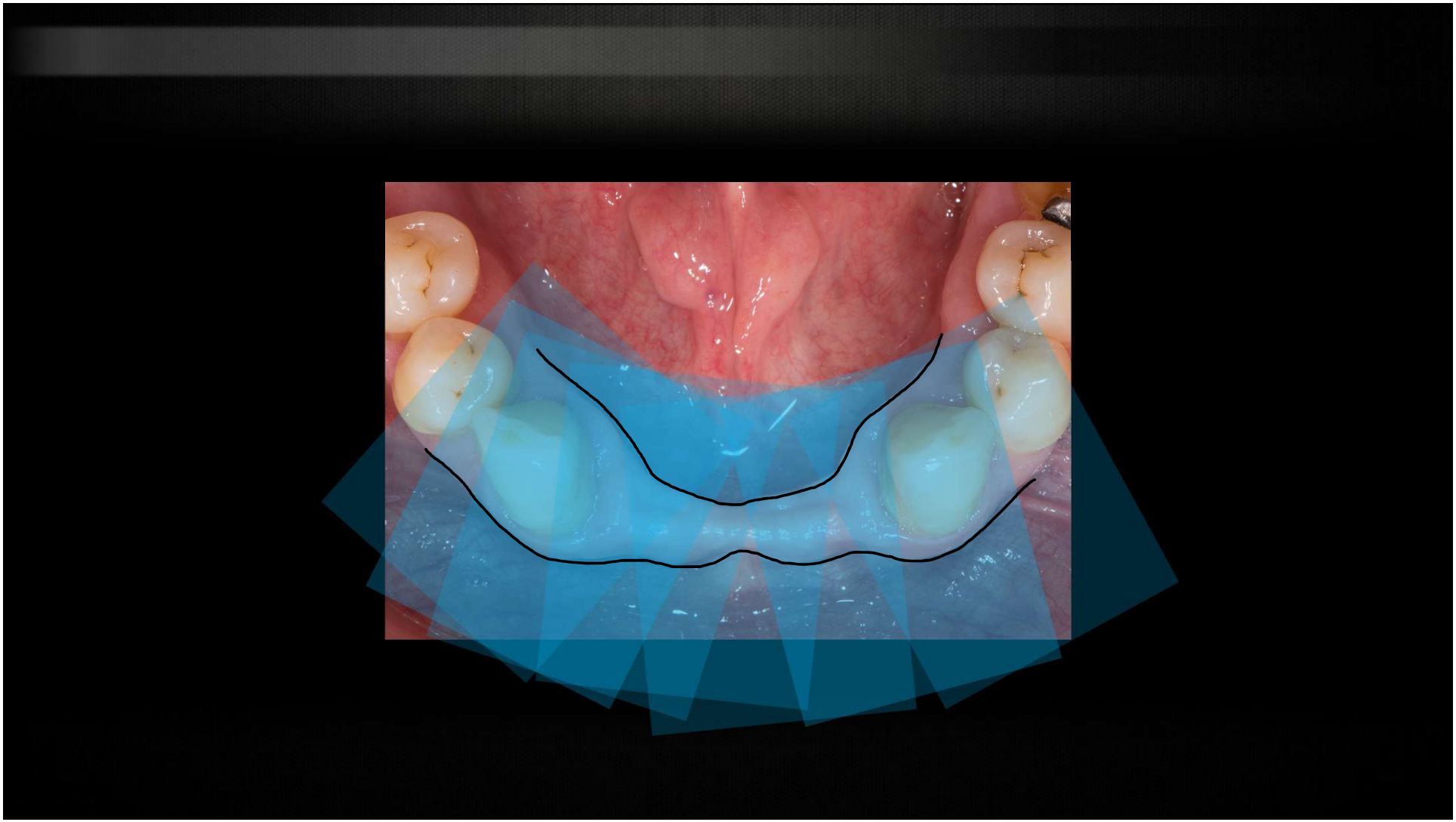


retraction | deflection

Nedelcu

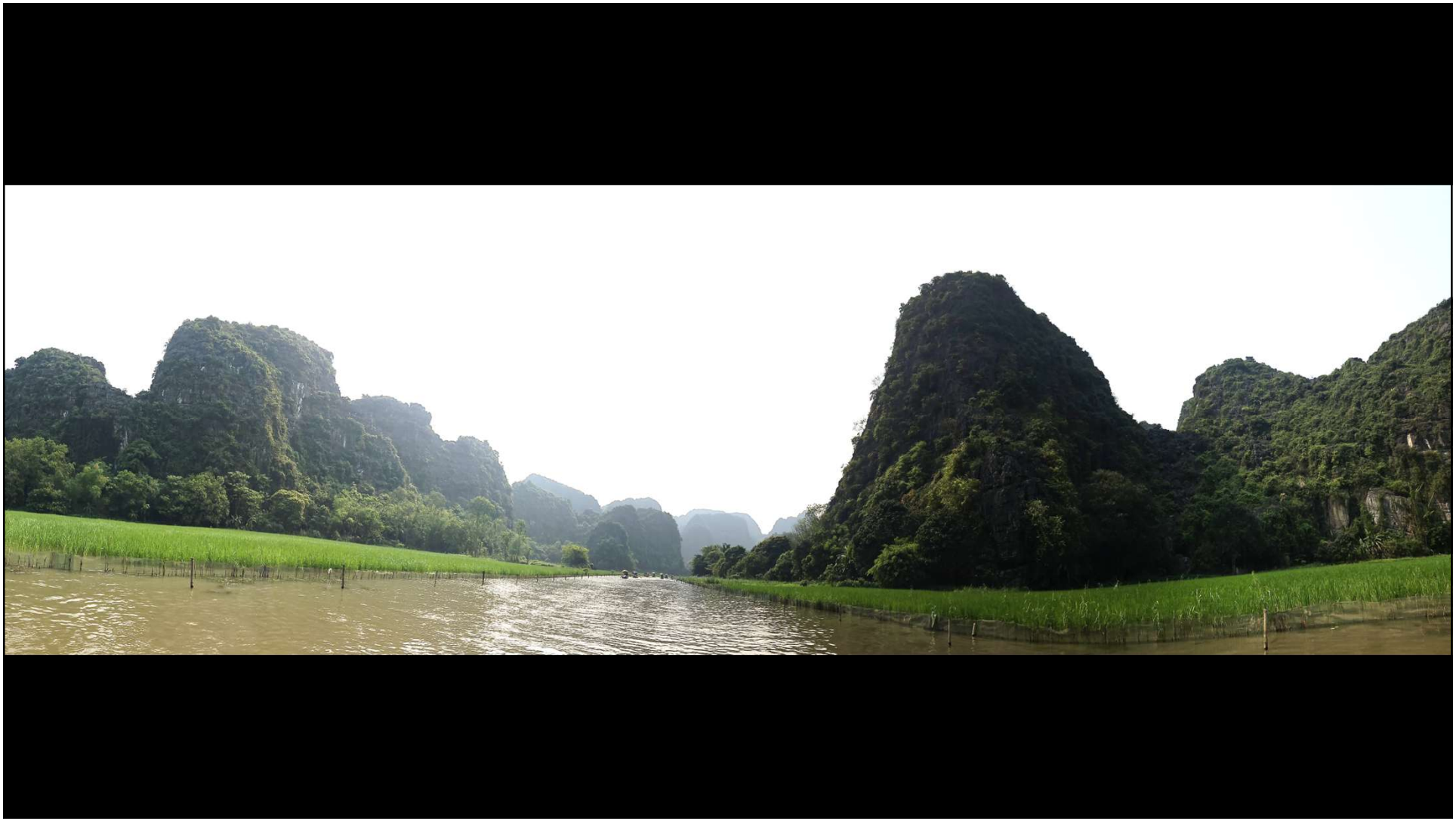

Nedelcu





45

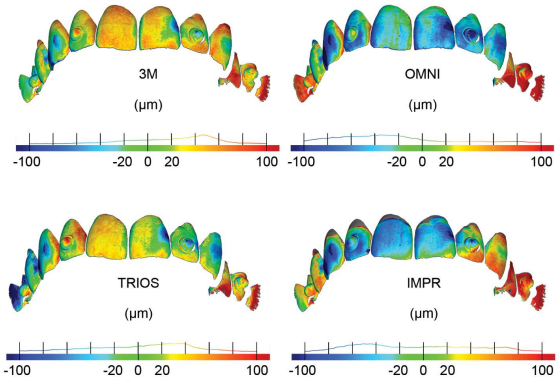
↳ scan quickly!
↳ reduces artifacts from unstable tissues

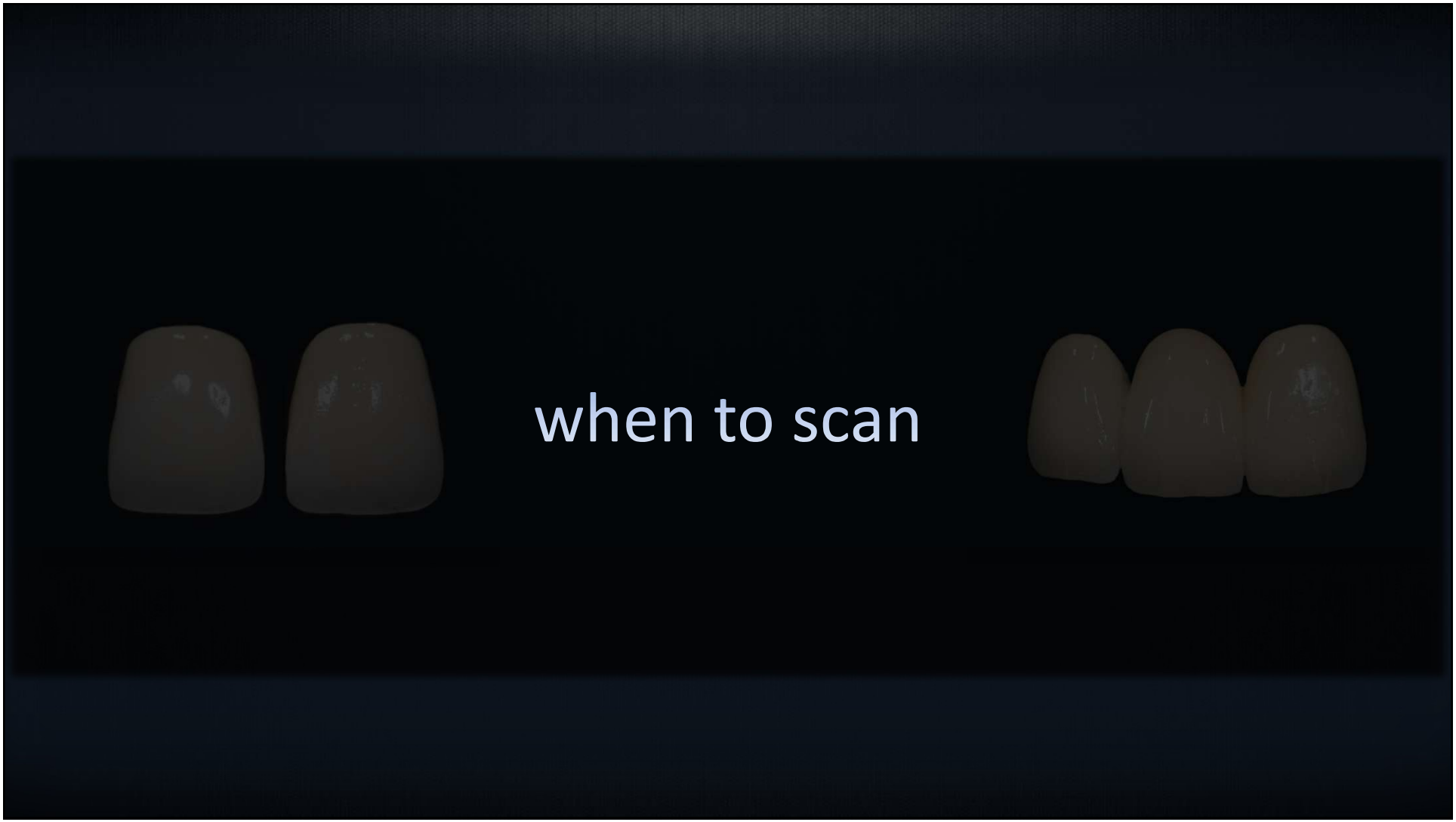


Accuracy and precision of 3 intraoral scanners and accuracy of conventional impressions: A novel in vivo analysis method

R Nedelcu [1], P Olsson [2], I Nyström [3], J Rydén [4], A Thor [5]

"Intraoral scanners can be used as a replacement for conventional impressions when restoring up to ten units without extended edentulous spans."




when to scan

suitable cases

Nedelcu

- Diagnostics & Treatment planning
  - Virtual
  - Model (3D printed)

suitable cases

Nedelcu

- Diagnostics & Treatment planning
  - Virtual
  - Model (3D printed)
- Splints

suitable cases

Nedelcu

- Diagnostics & Treatment planning
  - Virtual
  - Model (3D printed)
- Splints
- Onlays
- Crowns
- Special cases…

how to scan

3Shape scan strategy

Maxilla

The recommended scanning path consists of three swipes: occlusal, buccal, and palate.

1.Start the scanner while it rests occlusal on the molar, wait 3-5 clicks.

2.Move towards the centrals, capturing the occlusal surface.

3.Continue slowly during the centrals and again continue along the occlusal surface until you reach the last molar.

4.Turn slowly buccal by rotating the scanner 60-90 degrees at the last molar and complete the buccal swipe taking care of areas where soft tissue may interfere with the scan.

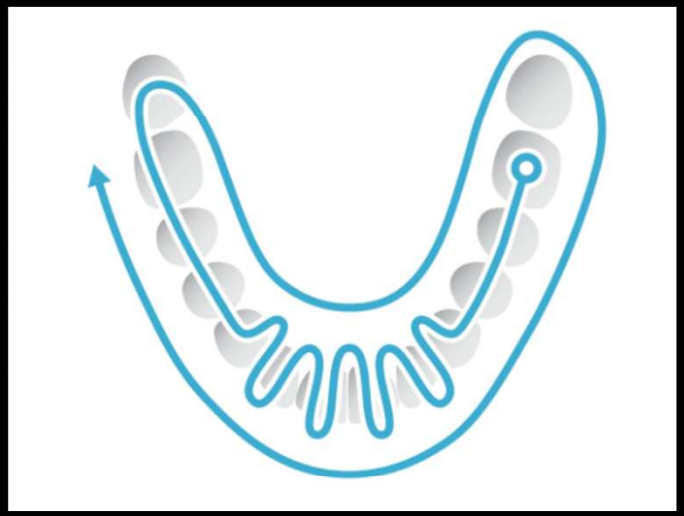
5.Go along the buccal side until reach the last molar on the opposite side.

6.Then roll to the palate side and complete the swipe.

If you wish to include the palate in the scan, swipe back to position the scanner behind the incisors and then slowly go from side to side the palate in the distal direction.

3Shape scan strategy

Mandible

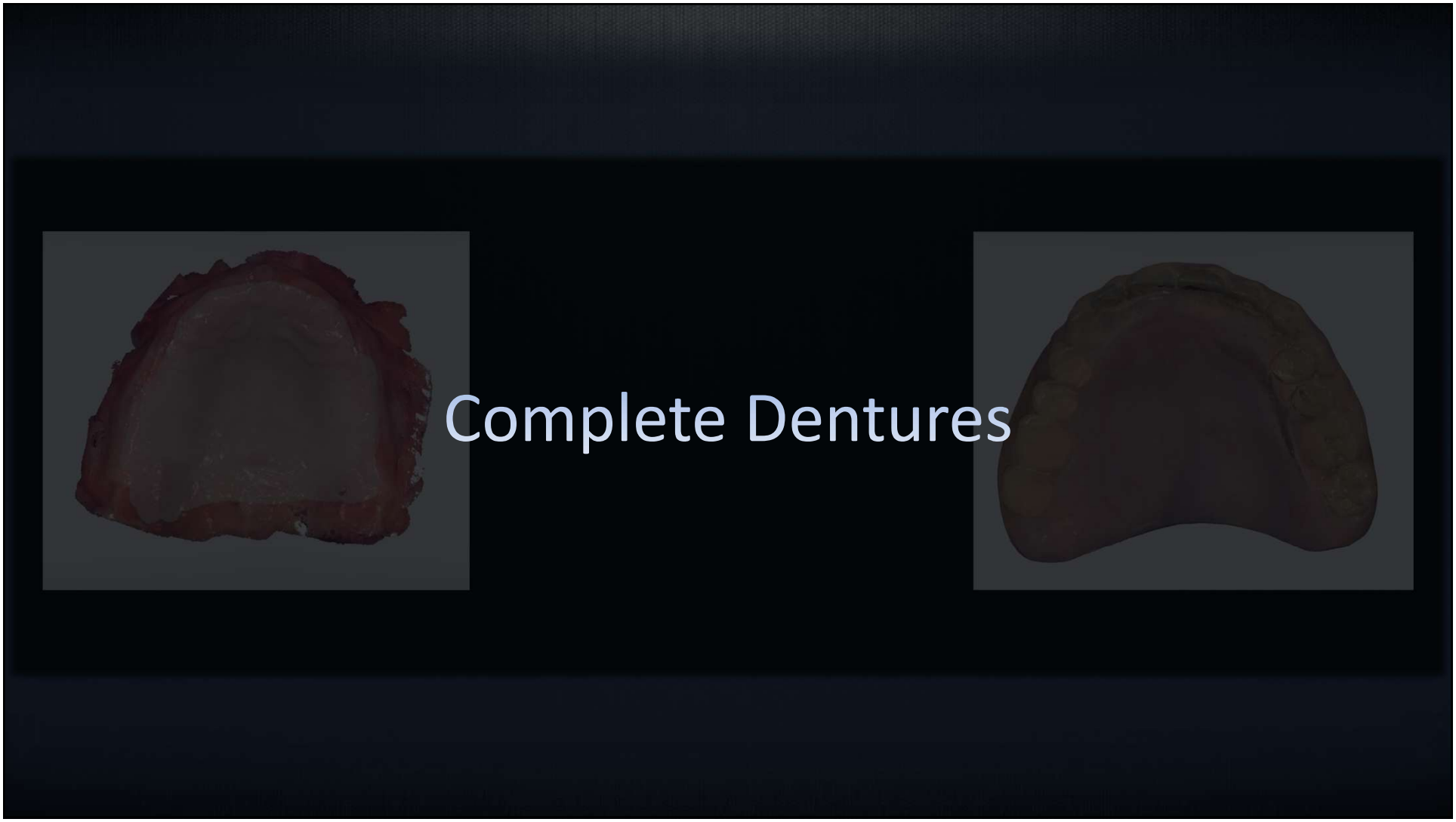


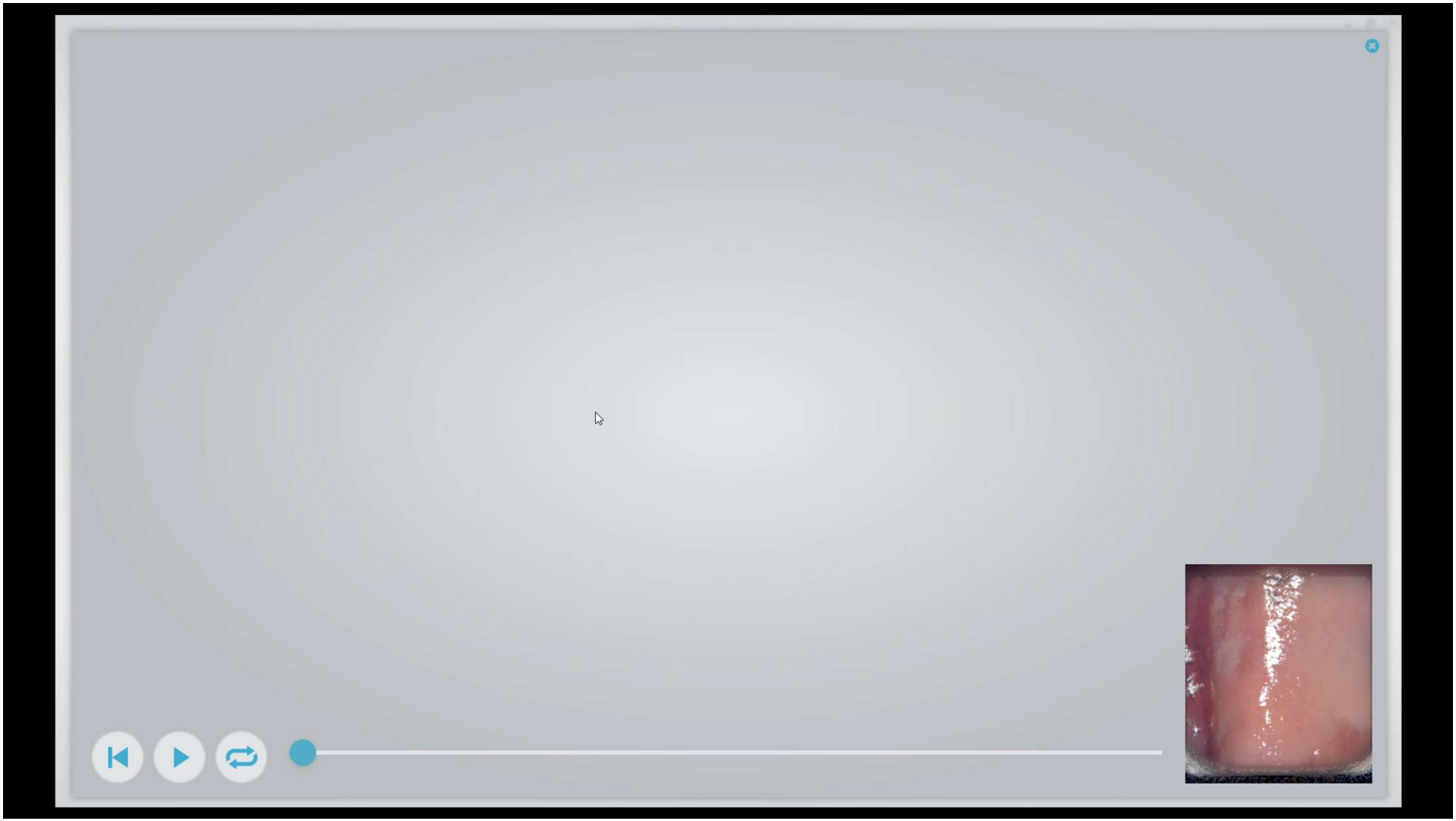
Lower Scan: The recommended scanning path consists of 3 sweeps: Occlusal, lingual, and buccal. The best scanning method is to start with the molar occlusal surface.

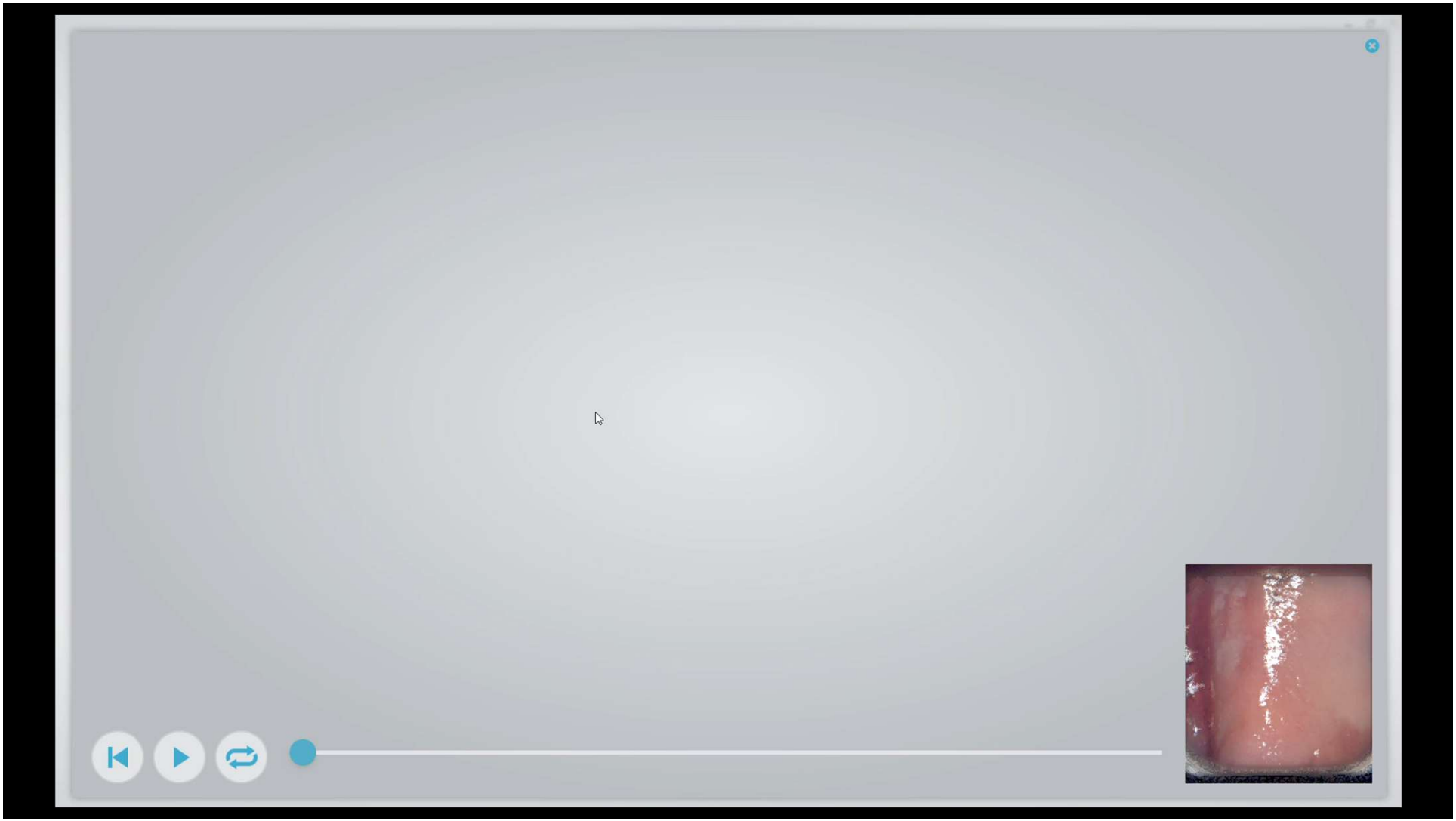
1. Wait 3-5 clicks, then move towards the incisors.
2. Slowly wiggle the scanner when passing centrals.
3. Continue until the last molar.

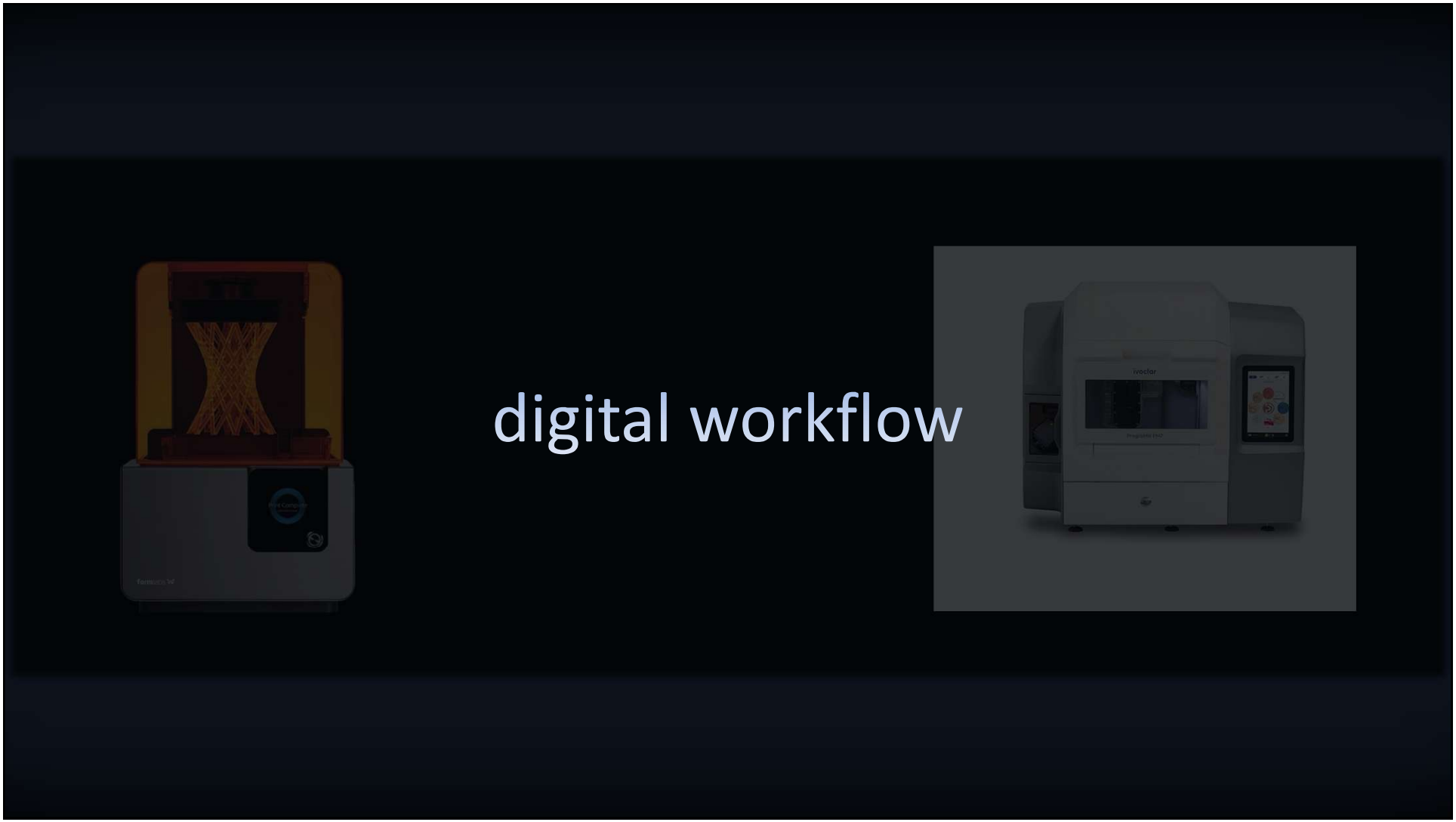
Remember to move the scanner smoothly without jumping around.

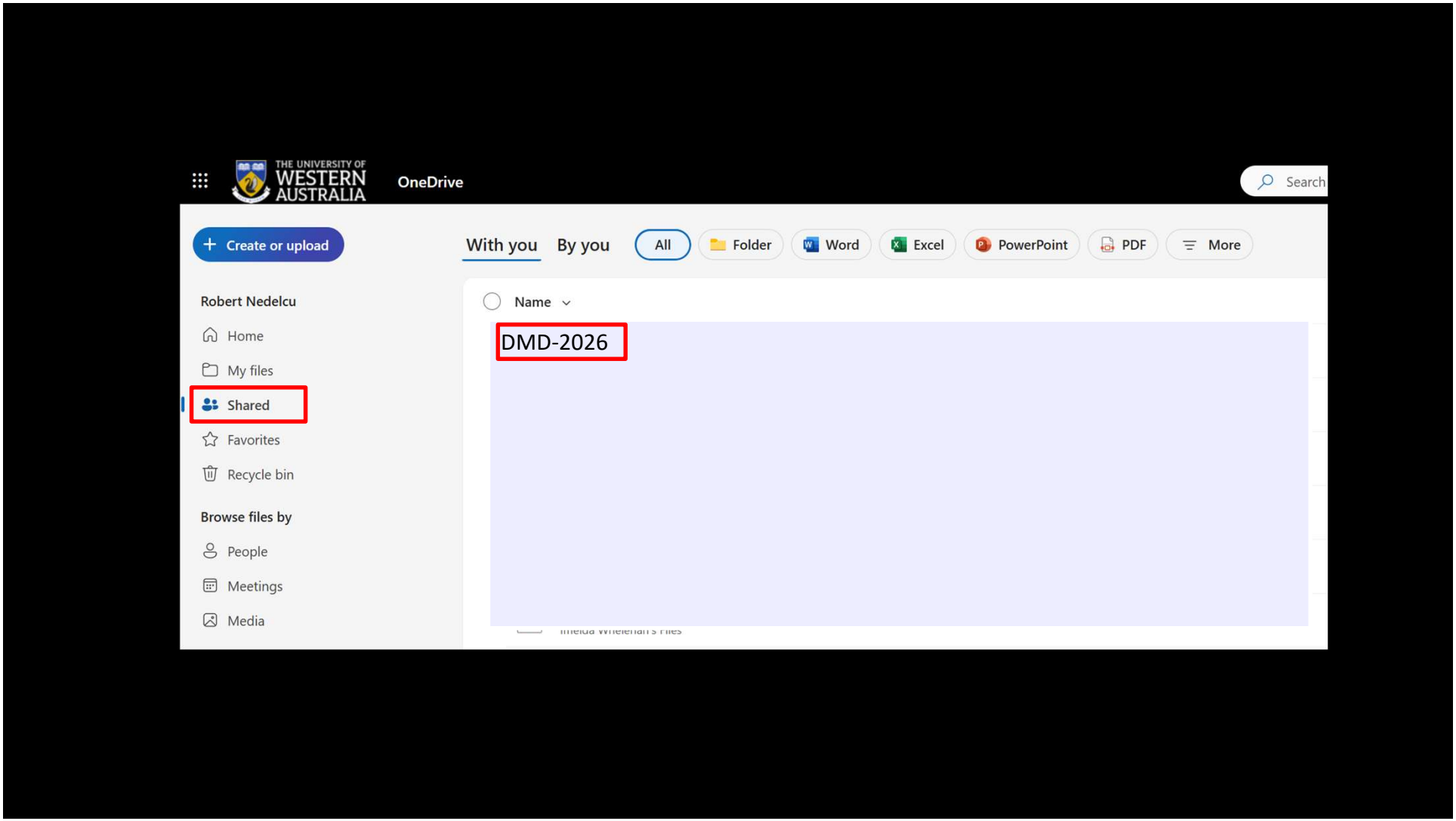
4. When you reach the last molar, turn slowly lingual, taking care of areas where soft tissue may interfere with the scan.
5. Roll the scanner 60-90 degrees to the lingual side and use the tip to keep the tongue away.
6. Go along the lingual surface of the whole arch, until reach the last molar on the opposite side.
7. Roll to the buccal side and complete the buccal swipe.
8. Go along the buccal surface of the whole arch.


Complete Dentures



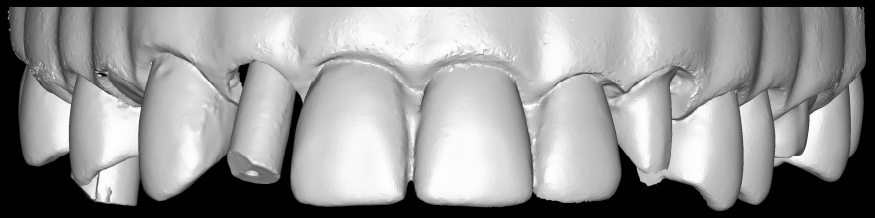



digital workflow


THE UNIVERSITY OF WESTERN AUSTRALIA
OneDrive
Search
Create or upload
With you
By you
All
Folder
Word
Excel
PowerPoint
PDF
More
Robert Nedelcu
Home
My files
Shared
Favorites
Recycle bin
Browse files by
People
Meetings
Media
Name
DMD-2026

3Shape Viewer – DCM file

STL | PLY



STL

Standard Tessellation Language

PLY

Polygon File Format

Laboratory workflow