DISIOR

Disior Bonelogic®
Product catalogue

January 2021

DISIOR

Diagnosis and treatment through true 3D vision

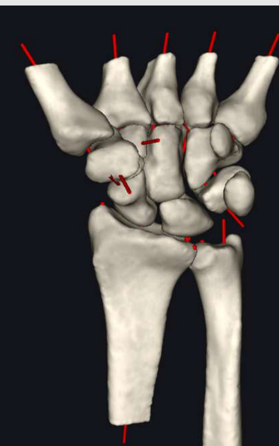
Our mission is to provide medical professionals with the diagnostic information they need to deliver personalized treatment plans.

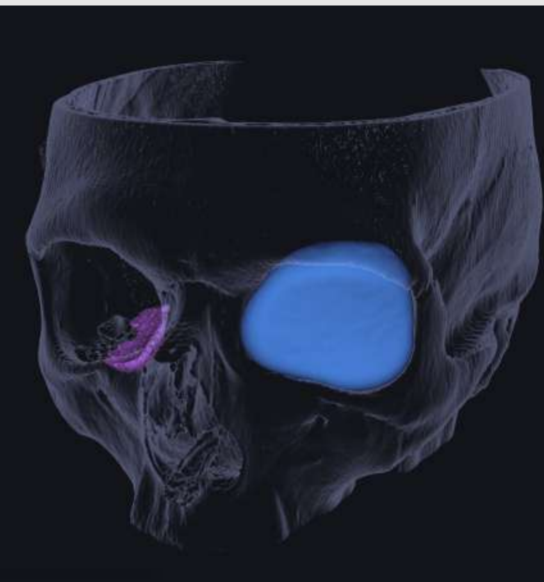
Established in 2016, Disior is a Finnish MedTech company that is committed to developing medical imaging analysis software that removes unnecessary labour, so that clinicians can get to treating patients as quick as possible. To do this our software:

- Streamlines the segmentation step removing hours of work
- Quickly creates mathematical models for visual analysis, 3D printing and implant design
- Automatically calculates objective and reliable 3D measurements that describe anatomical regions
- Consistently provides users with fast and accurate analysis for precise patient care and clinical research

"Until today, medical images have been analyzed using 2D slices, as if you were looking at the image with one eye only. Disior analyzes the original 3D data in a way that compares to having a full vision."

Professor Jari Salo MD, Specialist in Orthopedics and Trauma





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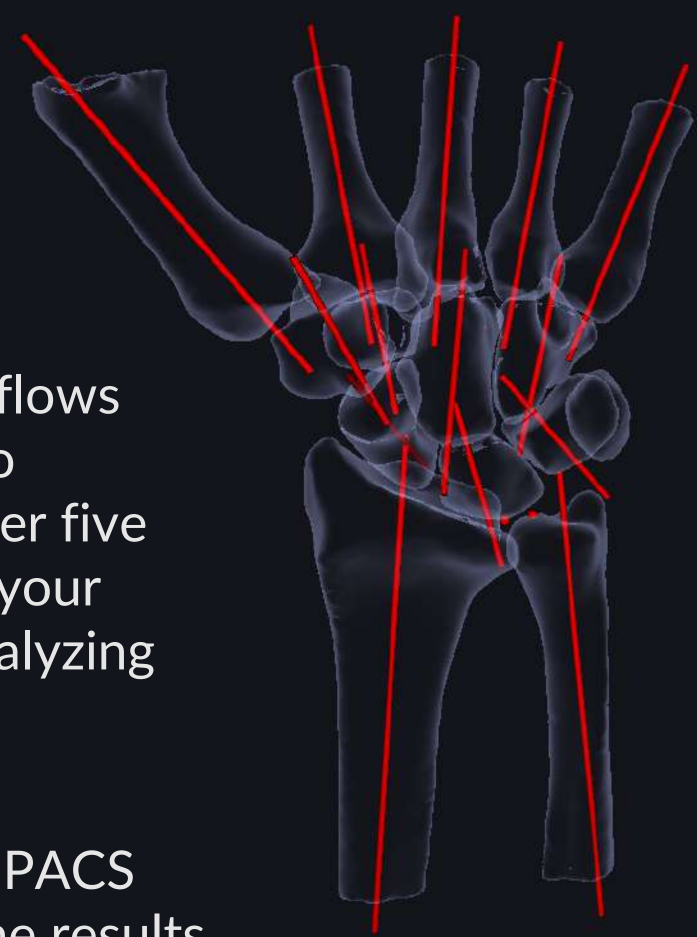
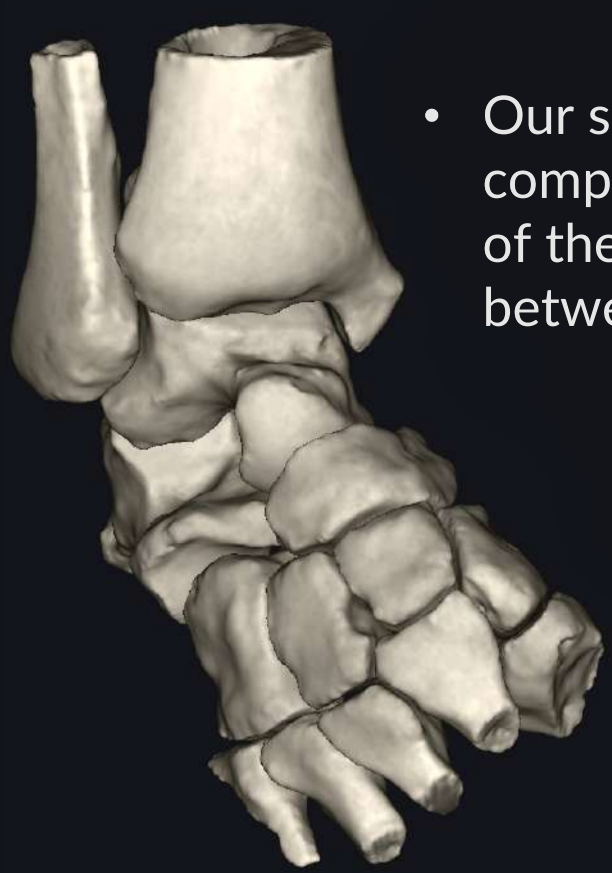
Bonelogic® 2.0

- Disior Bonelogic® 2.0 is a software tool for segmenting and analyzing 3D anatomy.



- This one software product can be used to analyze both hand and wrist and foot and ankle CT, CBCT or WBCT data.
- Bonelogic 2.0's simplified workflows allow you to go from DICOM to clinically relevant results in under five minutes so that you can spend your time planning treatment not analyzing data.



- Our software is fully PACS compatible so that the results of the analysis can be seamlessly shared between departments in your institution.
- And, it's safe for clinical use as it is CE marked and regulated as a Class II b medical device.

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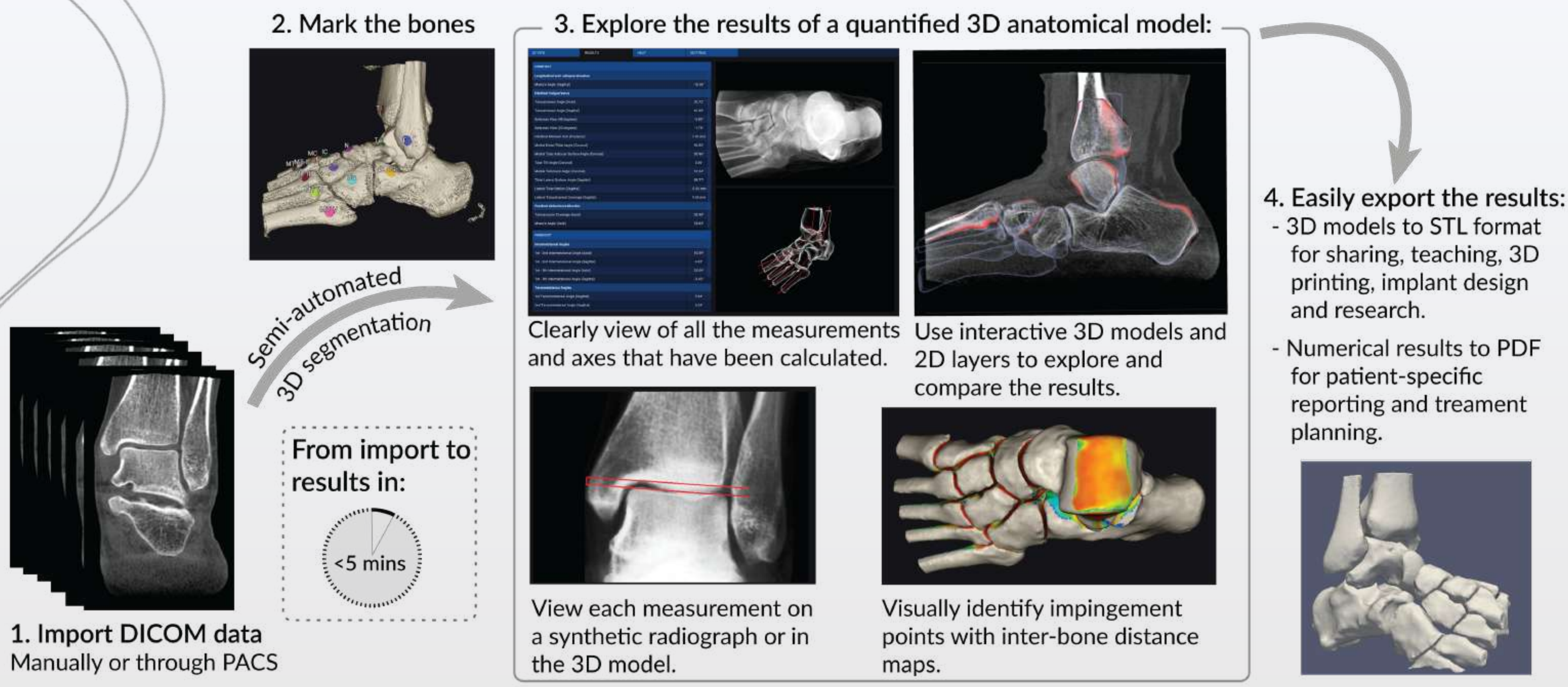
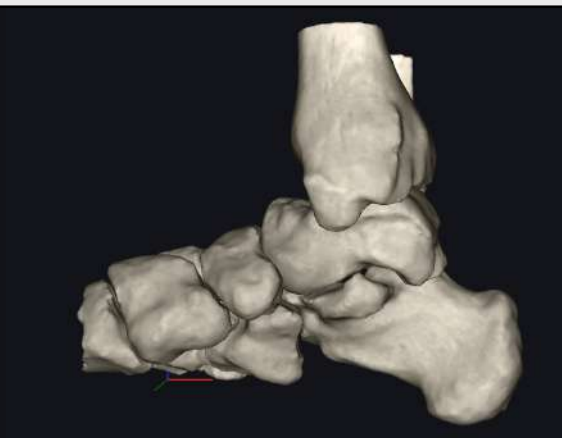
Bonelogic® 2.0 – Simple Workflows

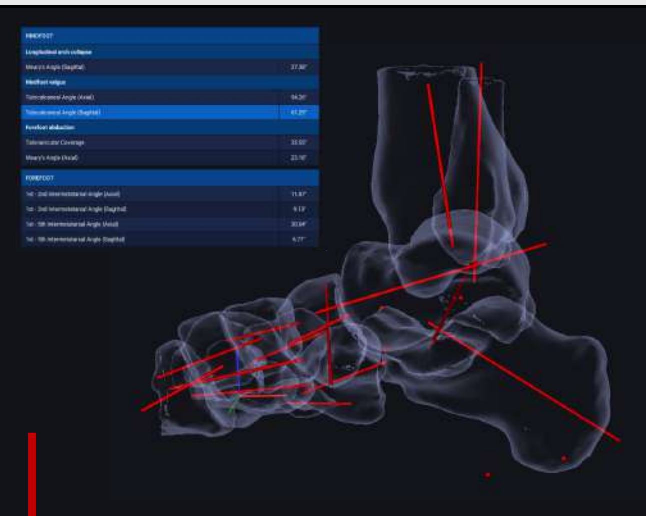
Foot and ankle case study

Accurate segmentation is the starting point for analyzing 3D imaging data, yet it is often the most time consuming.

- Bonelogic 2.0 removes this bottle neck by using semi-automated segmentation that takes you from DICOM to fully analyzed 3D models in less than 5 minutes.
- Across >1900 foot and ankle cases analysed with our software mean (± 1 SD) time taken to go from bone marking to quantified model is 3.11 ± 1.21 minutes.







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Bonelogic® 2.0 – Objectivity & Reliability

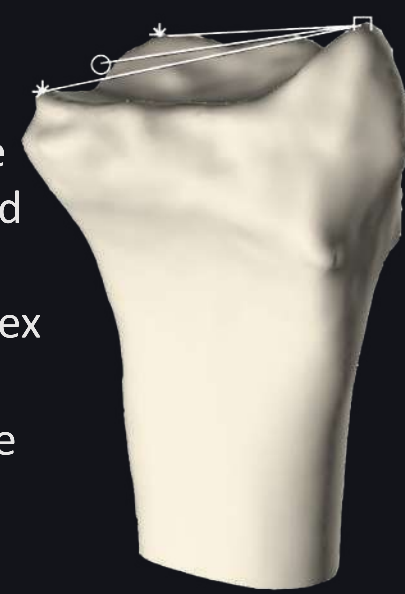
Hand and wrist case study

The issue with the rise of 3D imaging in clinical settings is that there is little guidance on how to set-up reliable 3D metrics[1] and as Professor Eero Waris puts it:

"The conventional 2D methods being applied to 3D data do not accurately represent the complex 3D nature of the hand & wrist."

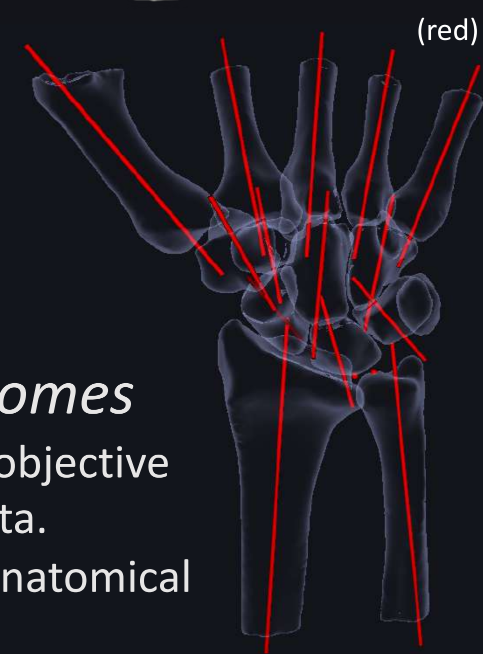
Objective and consistent measures[1]

- Dr Eero Waris's team used Bonelogic® to perform the world's first fully 3D anatomical study of the hand and wrist.
- Objectively describing normal variation of this complex structure, using 8 measures across 50 patients.
- This is especially helpful for complex cases where the deformity is multi-planar.



Left. Example of distal radius measurement definitions[1].

Below. Hand and wrist 3D model and bones axes (red)



Excellent reliability[2]

- Automated 3D analysis of 4 measurements over 33 wrists were found to be in excellent agreement (based on ICCs*), and were substantially more reliable than manual measurements on 2D X-rays.

Assistant Prof. Eero Waris MD, Chief Physician, Helsinki University Hospital

Bonelogic® 2.0 for better outcomes

- Directly, through quick, reliable and objective analysis of an individual patients' data.
- Indirectly, by facilitating large scale anatomical and biomechanical studies.

*Inter-class correlation coefficients

1. Suojärvi, N. *et al.* (2020a)
2. Suojärvi, N. *et al.* (2020b)

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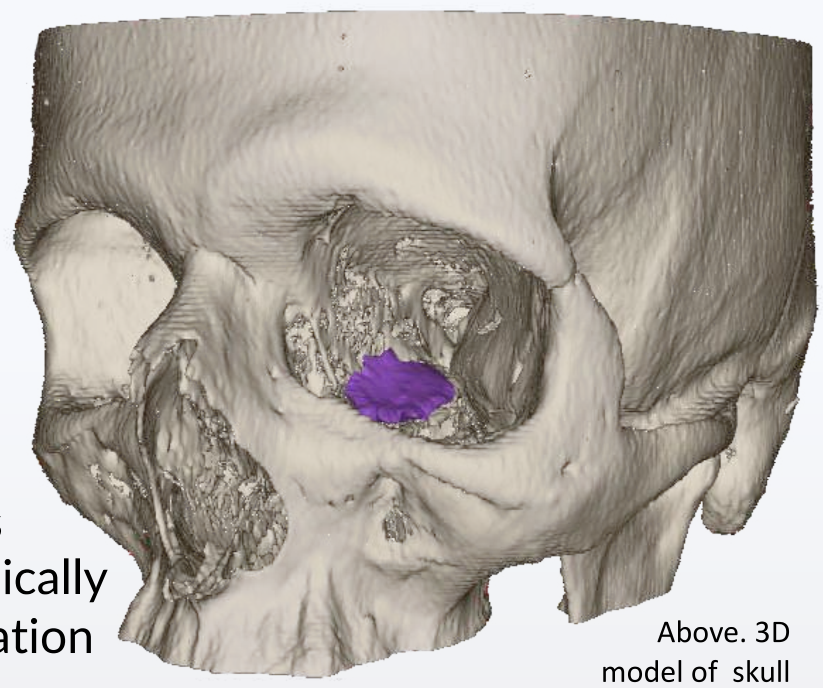
Diagnosis and treatment through true 3D vision

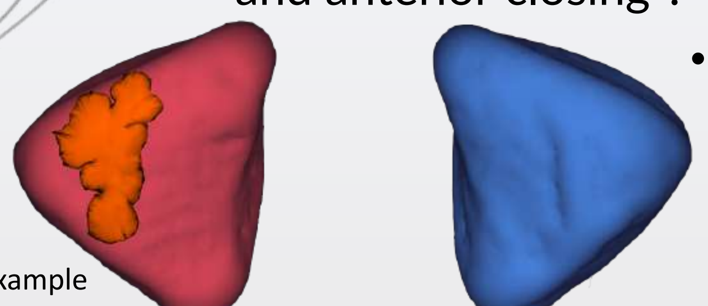
Bonelogic® CMF Orbital

Automated analysis of orbit size and shape, with automatic defect detection and virtual reconstruction

- In orbital fractures, reliable diagnostics are needed to make the important decision- to operate or not to operate.
    - Accuracy of the volumetric data and morphology of the bony structures is critical to avoiding side-effects like, double vision and globe malposition[1].
    - Orbital volume measurement methods today are cumbersome to use, and typically require manual correction of segmentation and anterior closing[2].



Above. 3D model of skull with defect detected

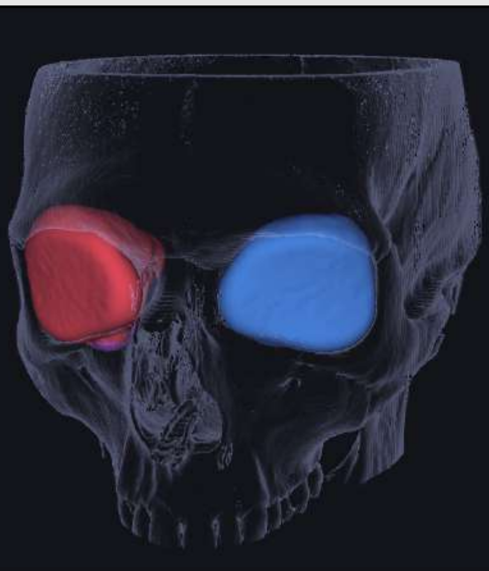


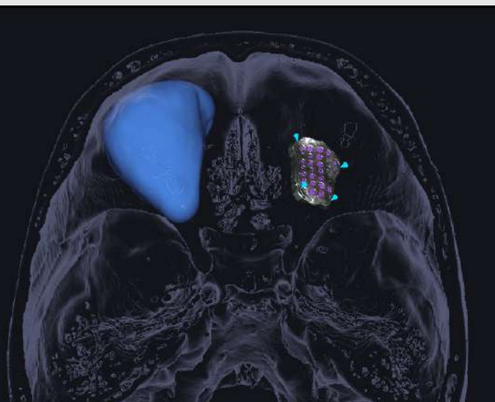
Right. Example of volumetric analysis results.

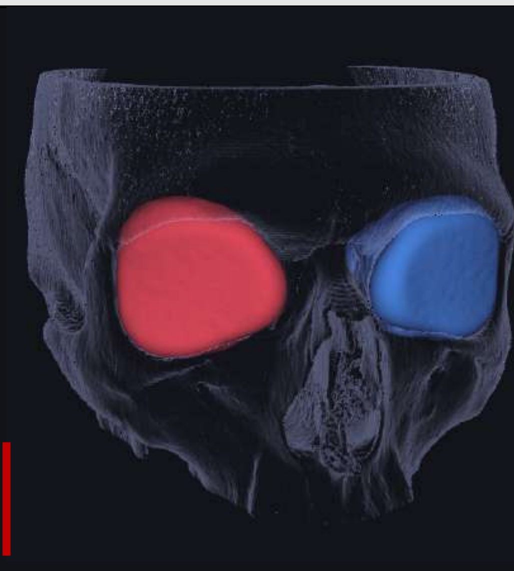
VOLORS	
Right volume / Left volume	106,23 %
Left volume / Right volume	94,14 %
DEFECT #1	
Defect area / Wall area	8,7 %

- Disior modelling technology takes the next step from visual assessment and manual measuring of the orbital volume and shape. The algorithms track the area of interest for you, and use pre-set reference points for consistent, automated measurements
    - And, it's safe for clinical use as it is CE marked and regulated as a Class I medical device.

1. Snäll *et al.*, (2019) 2. Wagner *et al.*, (2016)







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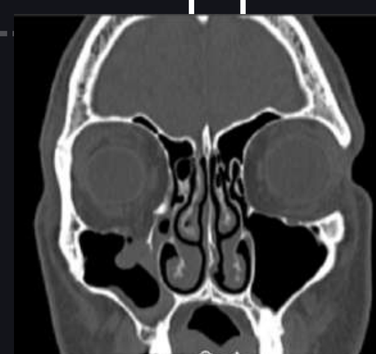
Bonelogic® CMF Orbital– Workflow

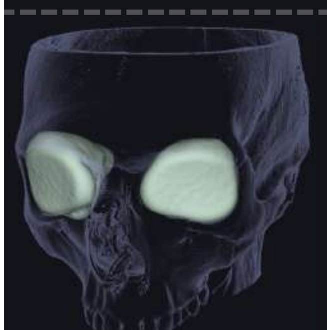
Pre-Operation

Post-Operation

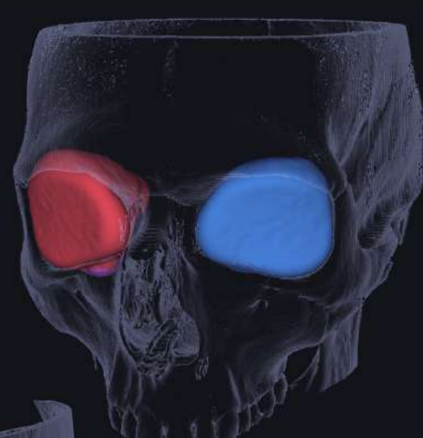
Import

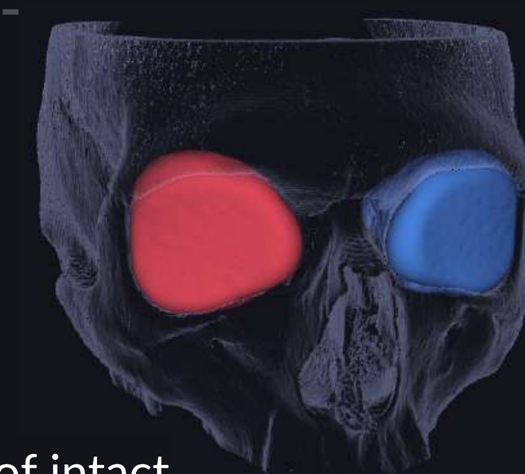


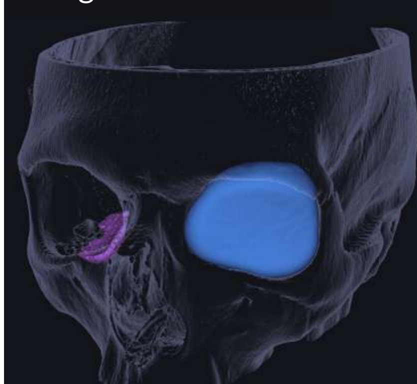
Automated segmentation and analysis of DICOM



Segmented orbits







Defects detected

Analyzed 3D model of intact (blue) and fractured (red) orbits

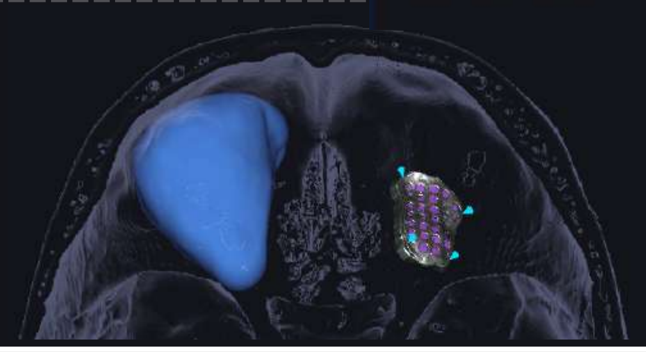
Results

PRE-OPERATIVE (1.9.0-0)	
VOLORS	
Right volume / Left volume	106,23 %
Left volume / Right volume	94,14 %
DEFECT #1	
Defect area / Wall area	8,7 %

POST-OPERATIVE (1.9.0-0)	
VOLORS	
Right volume / Left volume	99,84 %
Left volume / Right volume	100,16 %

Directly compare the pre-op and post-op orbital volumes to assess the effectiveness of treatment.

Treatment planning



Make templates of patient specific implants for orbit reconstruction

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Disior Bonelogic® in research

Conduct world-leading research with us

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