

Synopsys Simpleware From 3D Image to Mesh

Simulia Germany Conference, Hanau

Dipl.-Ing. Denis Feindt

CONFIDENTIAL INFORMATION

The following material is confidential information of Synopsys and is being disclosed to you pursuant to a non-disclosure agreement between you or your employer and Synopsys. The material being disclosed may only be used as permitted under such non-disclosure agreement.

IMPORTANT NOTICE

In the event information in this presentation reflects Synopsys' future plans, such plans are as of the date of this presentation and are subject to change. Synopsys is not obligated to develop the software with the features and functionality discussed in these materials. In any event, Synopsys' products may be offered and purchased only pursuant to an authorized quote and purchase order or a mutually agreed upon written contract.

Synopsys / Simpleware Intro

Synopsys Today: From Silicon to Software



FY18 Revenue:
~\$3B*



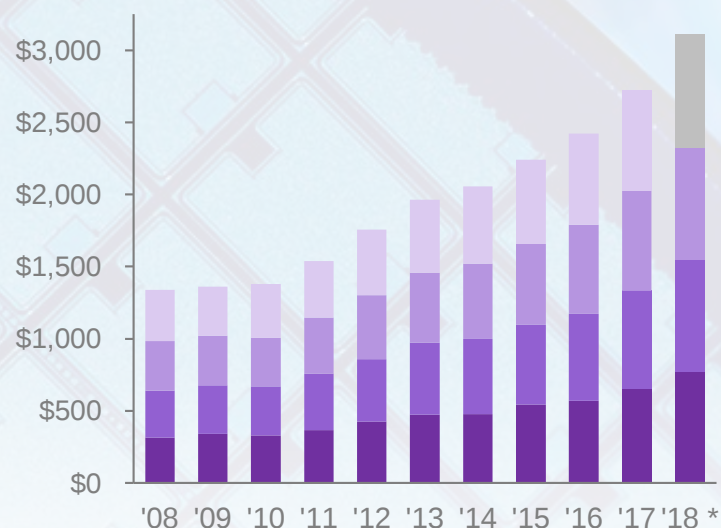
Employees:
>13,030



Patents:
2,189



Years:
30+



* Note: Q4'18 guidance midpoint provided August 22, 2018



#1 electronic design automation tools & services

Broadest IP portfolio and **#1** interface, analog, embedded memories & physical IP

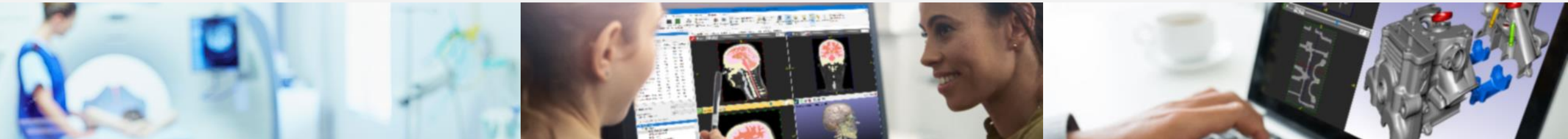
'Leader' in Gartner's Magic Quadrant for application security testing

Simpleware Product Group

- Developers of high-end 3D image processing software
- Dedicated Sales, Support and Service teams
- Global presence
- Customer base in life sciences, materials and manufacturing applications

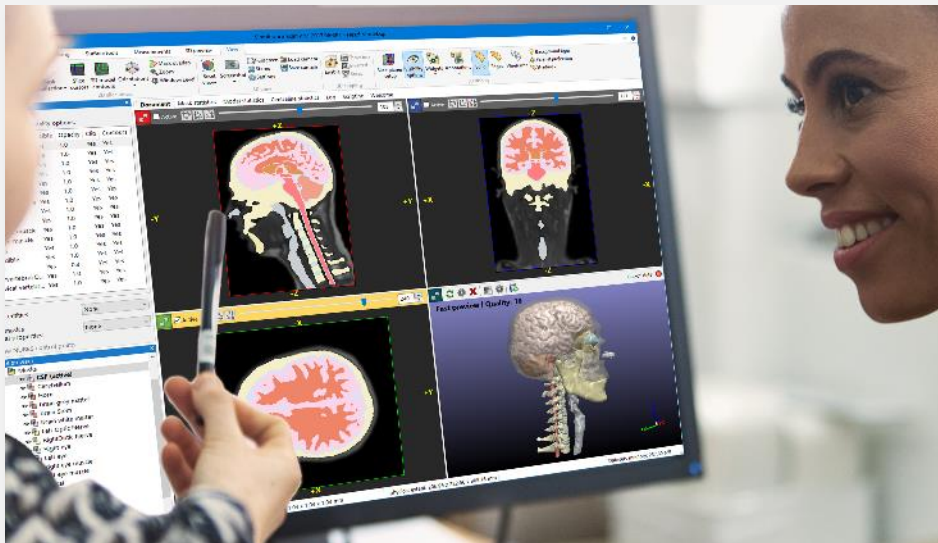


SYNOPSYS® | SIMPLEWARE PRODUCT GROUP

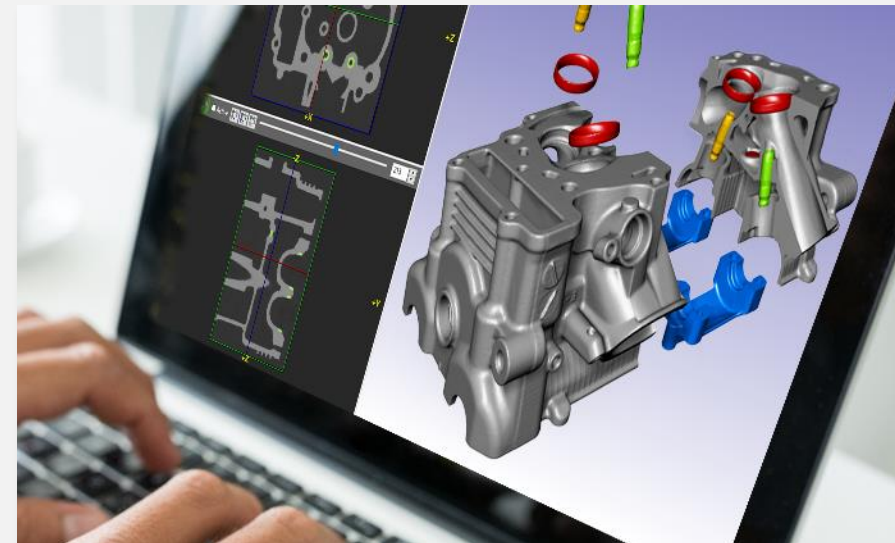


Simpleware Product Group

Customer Applications



Life Sciences



Manufacturing & Materials

Applications in Life Sciences / Product Integration

Implants



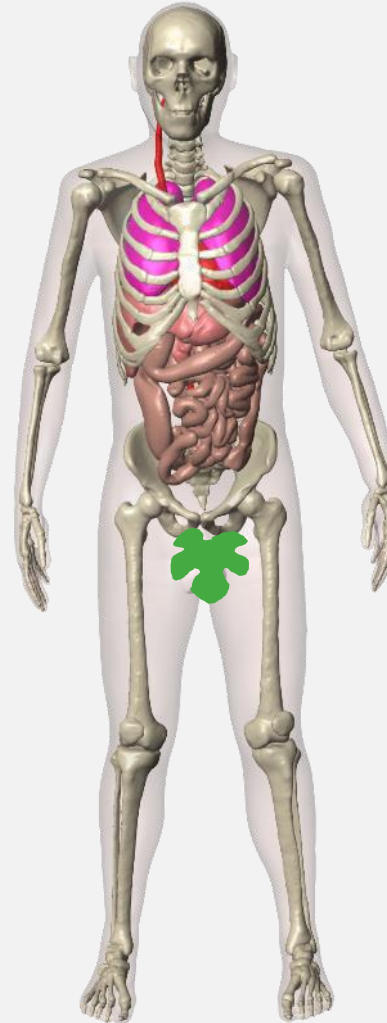
Drug Delivery



Brain Stimulation



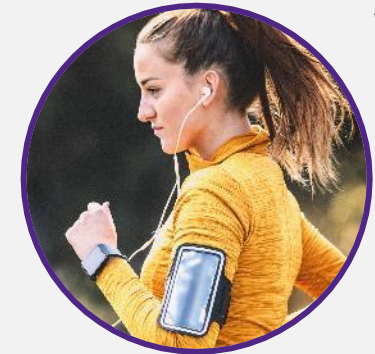
Surgical Guides



Protective Gear



Wearable Electronics



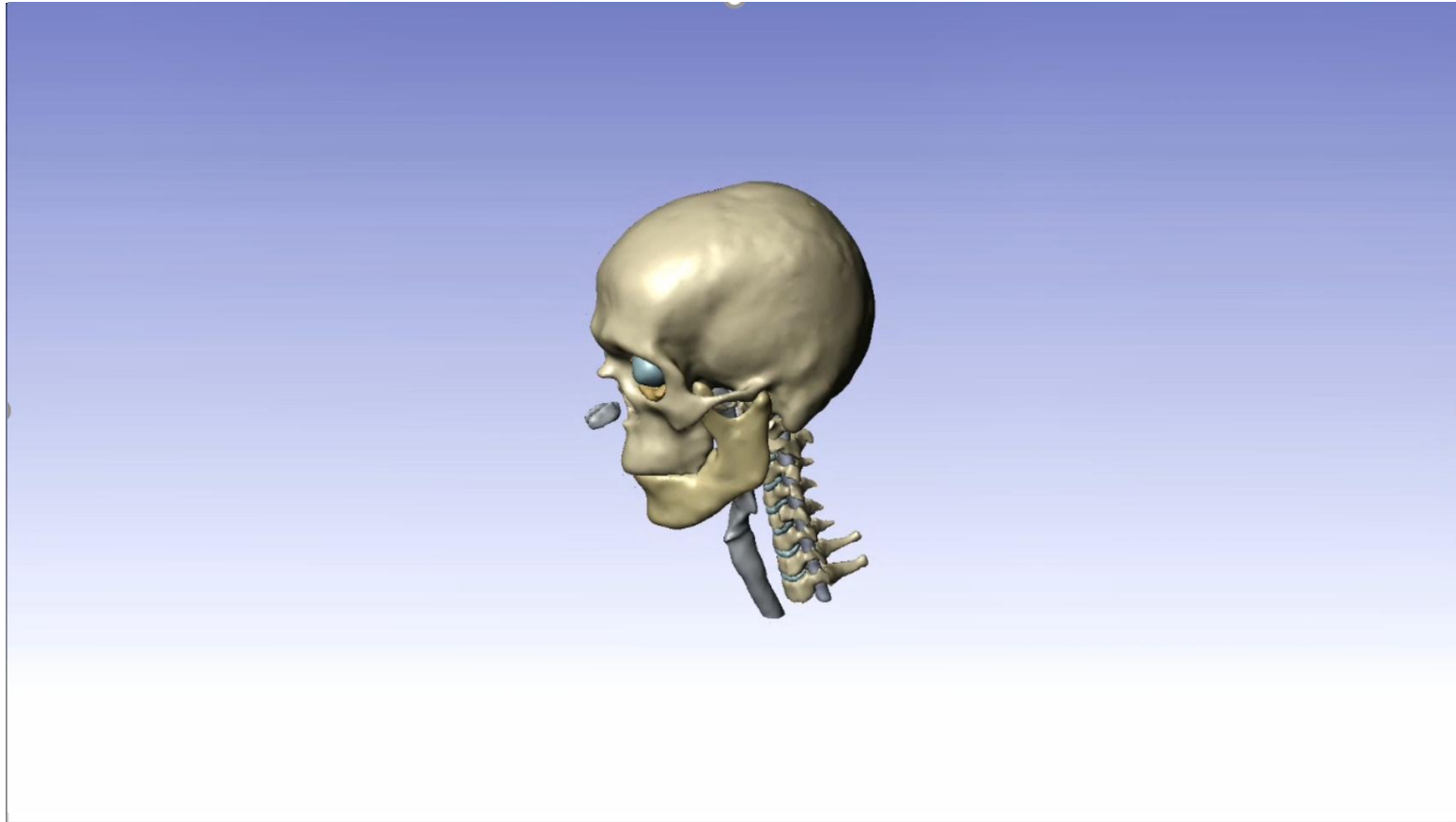
Consumer Products



Shoes / Clothing



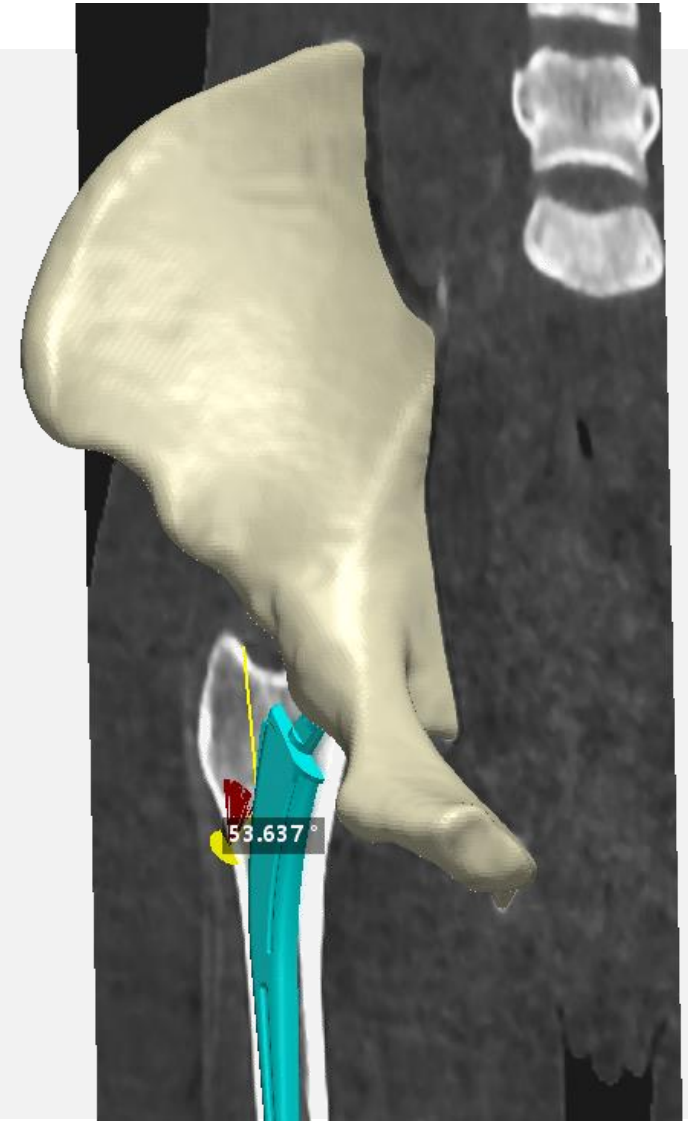
Example: Human Head Model



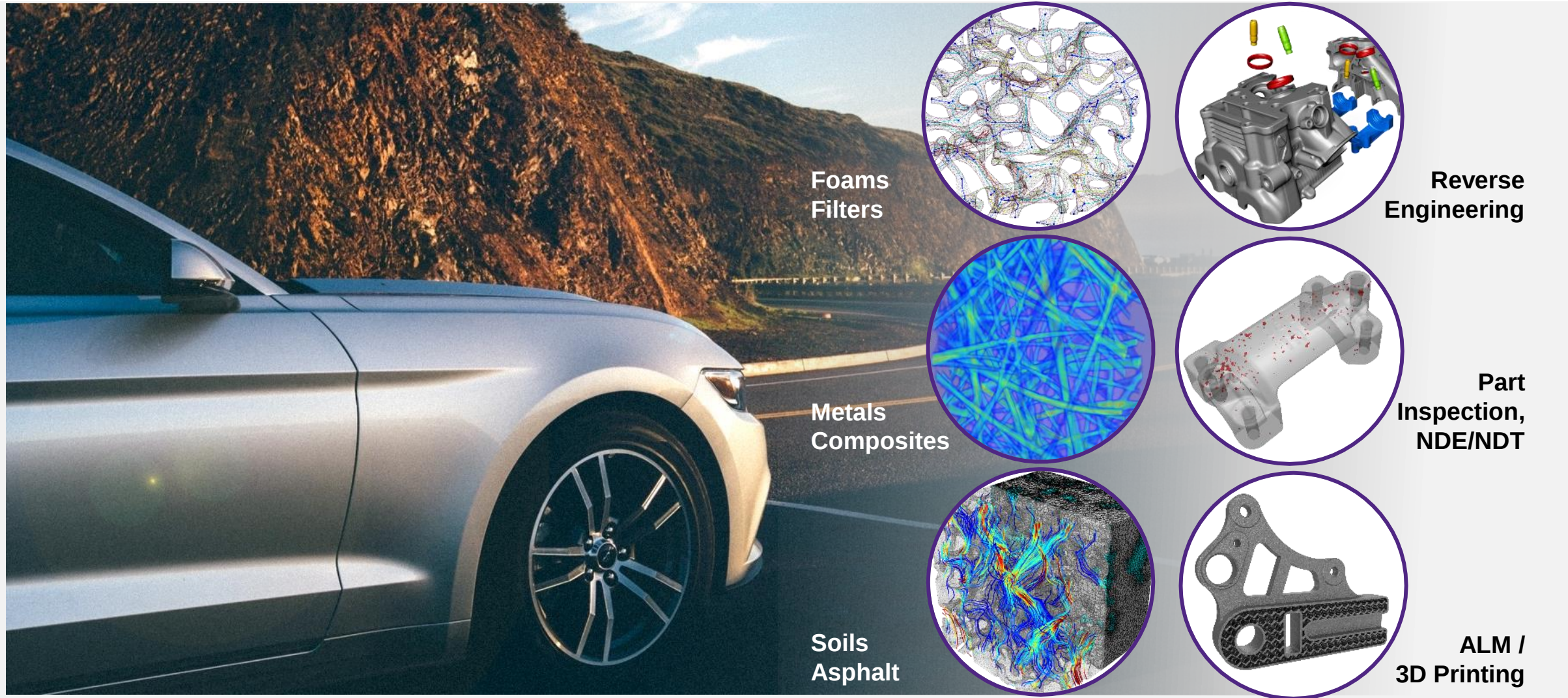
Why Simpleware for Medical/Clinical?

Example: Cut down on intra-operative time and improve clinical outcomes, based on pre-operative scans (e.g. CT, MRI).

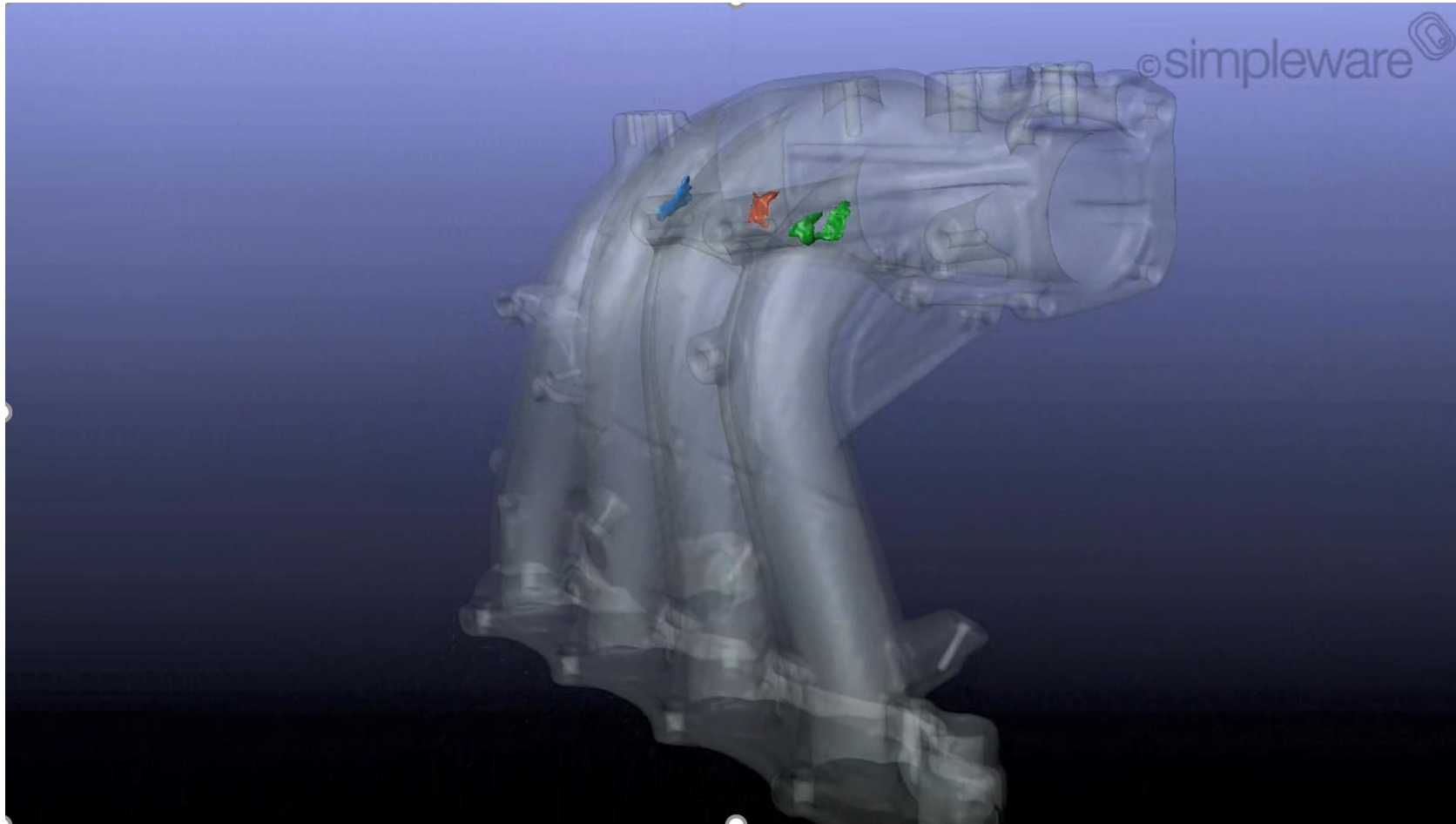
- Take pre-operative virtual measurements
- Carry out virtual planning e.g. resect bone, virtually check fit of implant or stent within artery
- 3D Print – e.g. for difficult cases- obtain a physical model of femur or aorta for pre-surgical planning/training



Applications in Materials & Manufacturing



Example: Engine Manifold

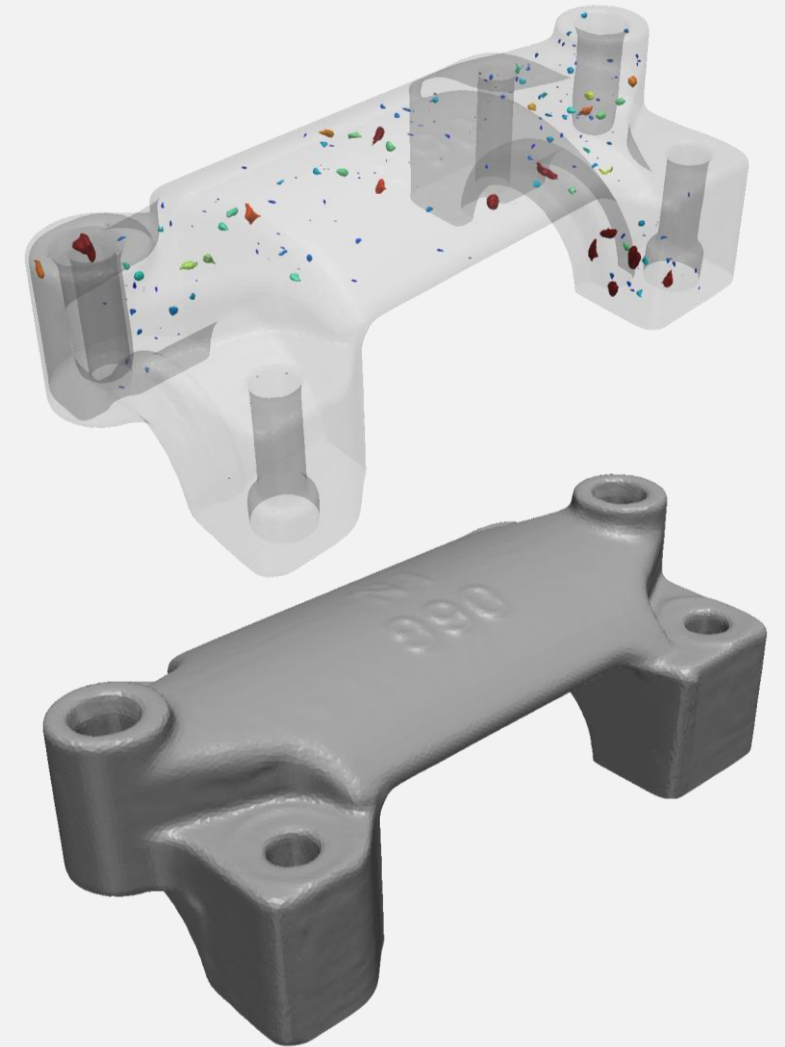


Why Simpleware for Materials & Manufacturing?

Industrial Reverse Engineering Example:

Inspect and validate as-built parts and compare to designs

- Take scans of a manufactured part, e.g. casting, ALM, injection moulding...
- Non destructive 3D visualisation, e.g. to quantify defects
- Carry out geometric metrology, measurements, compare to original CAD
- Facilitate simulation on as built or damaged part to check still fit for purpose

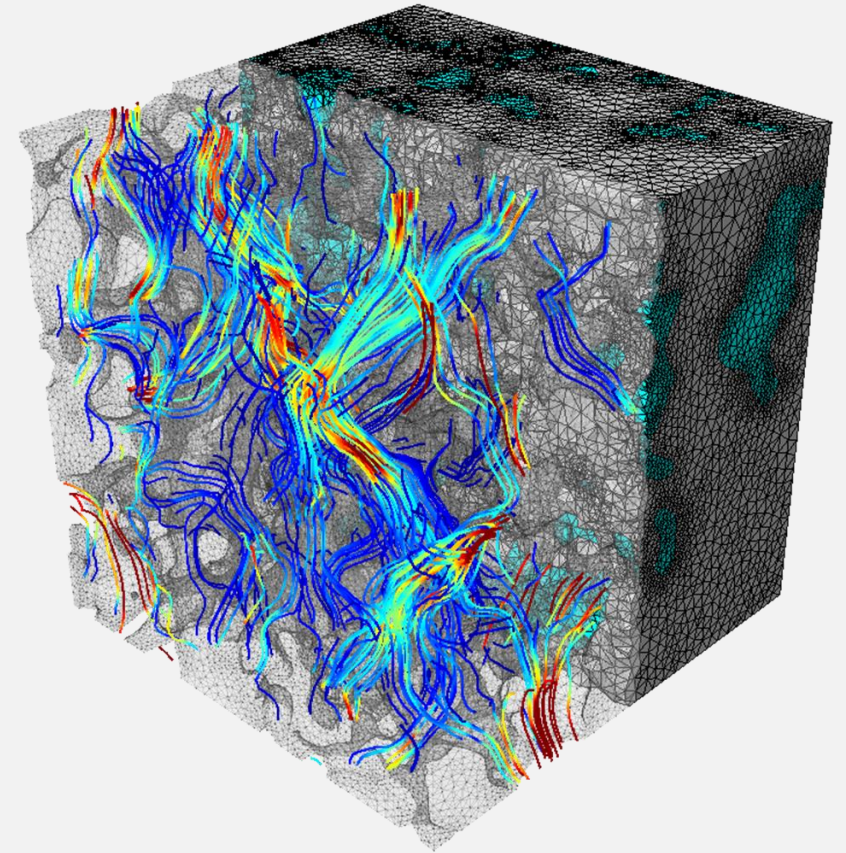


Why Simpleware for Materials & Manufacturing?

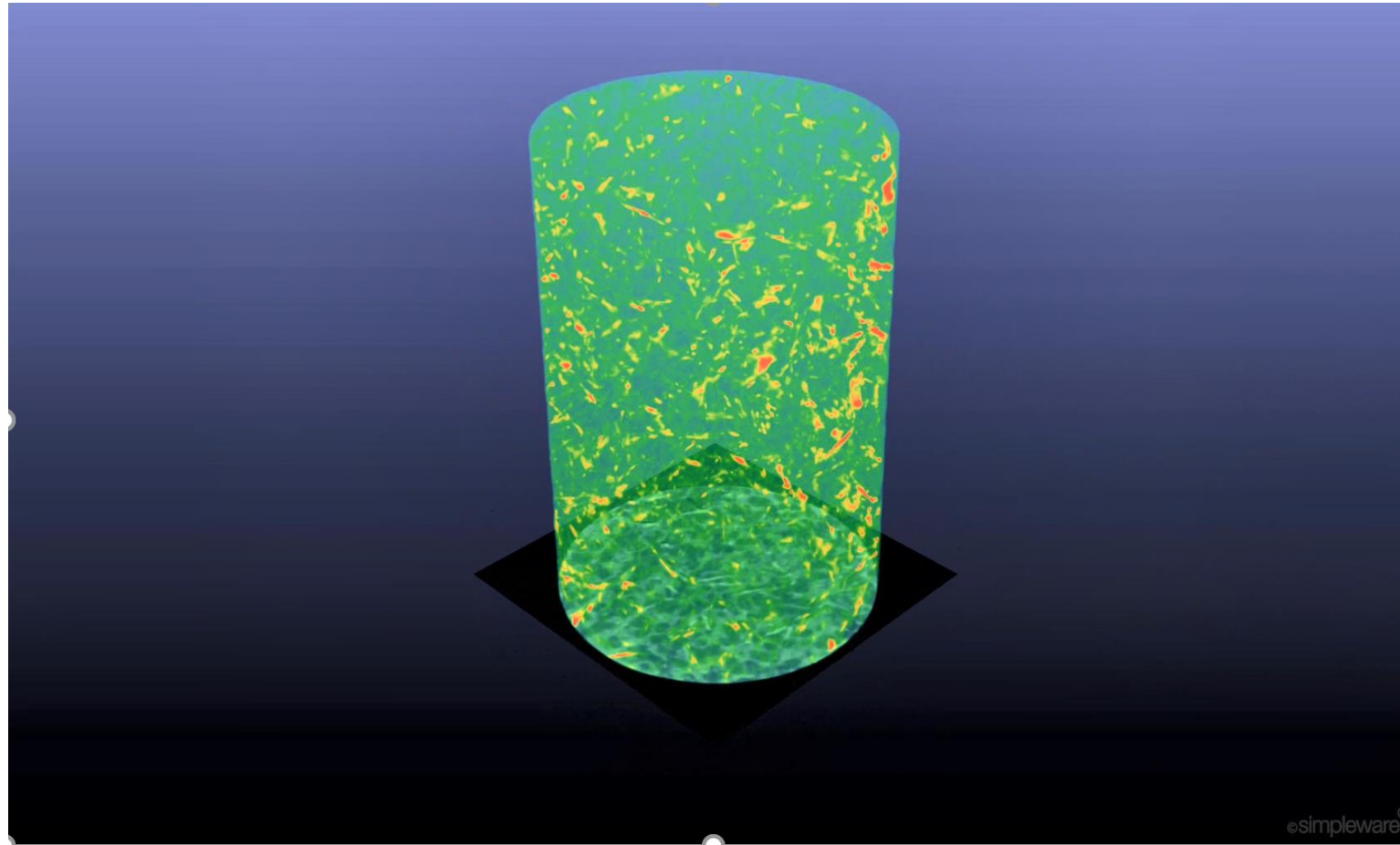
Materials Industry Example:

Understand or improve performance of a microstructure, e.g. filter, foam, composite, textile, soil, asphalt...

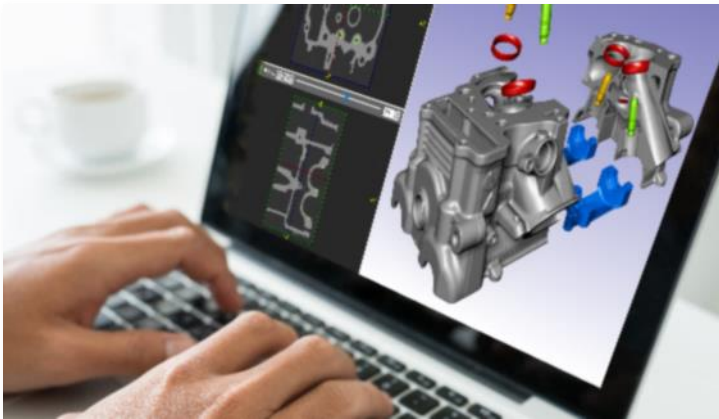
- Visualise internal structure from scans or synthetic data
- Calculate porosity, surface area, pore/particle distribution, fibre orientation...
- Analyse network structures, e.g. centrelines, shortest routes...
- Obtain homogenised material properties, e.g. effective permeability, Young's Modulus...



Example: Rock Core



Simpleware Products Overview



Simpleware
Software



Simpleware
Human Body Models



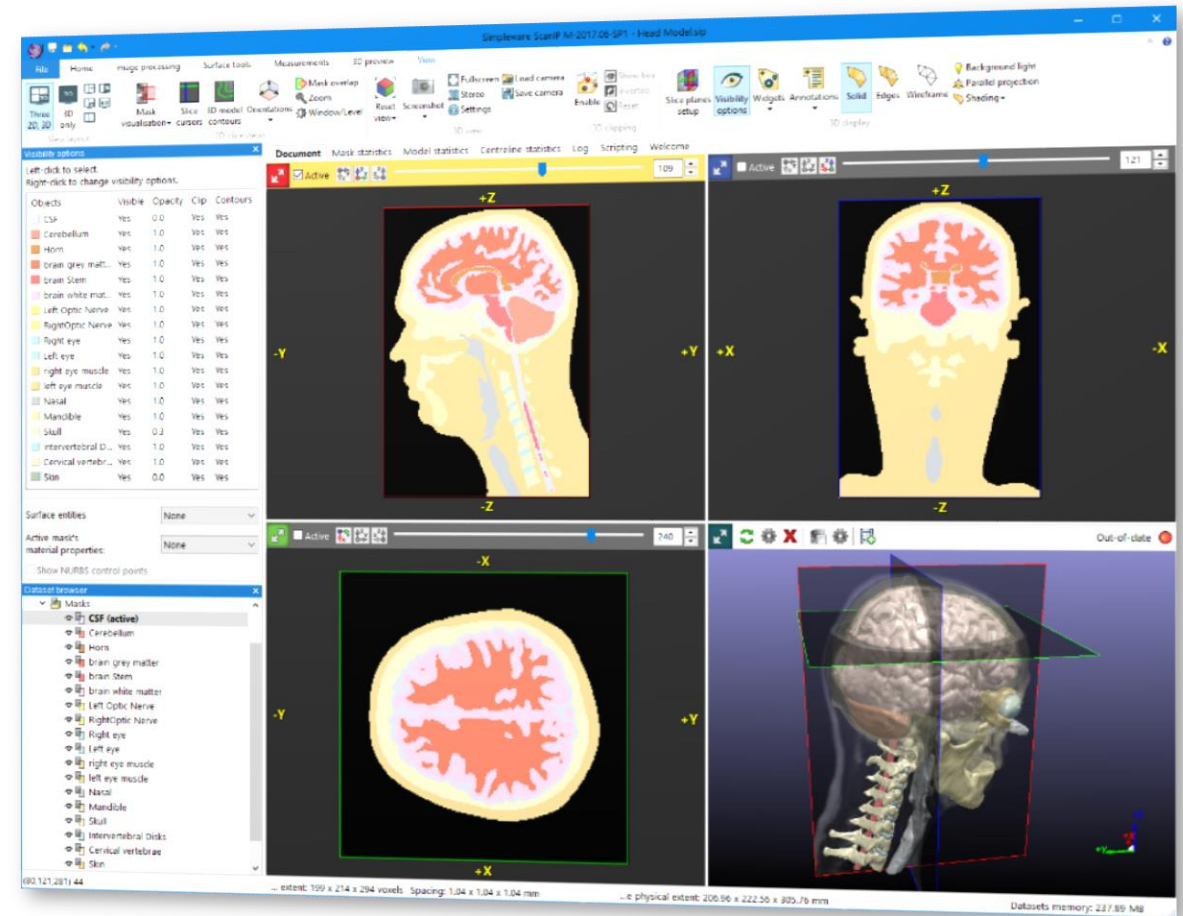
Simpleware
Services

Simpleware Software Solutions

Simpleware Software Solutions

GUI-based high-end 3D image processing platform which provides comprehensive range of tools for:

- Visualization including animation 3D data
- Filtering and segmentation
- Measurement and quantification
- CAD and image integration
- 3D print, CAD and simulation model generation



Simpleware Software Solutions

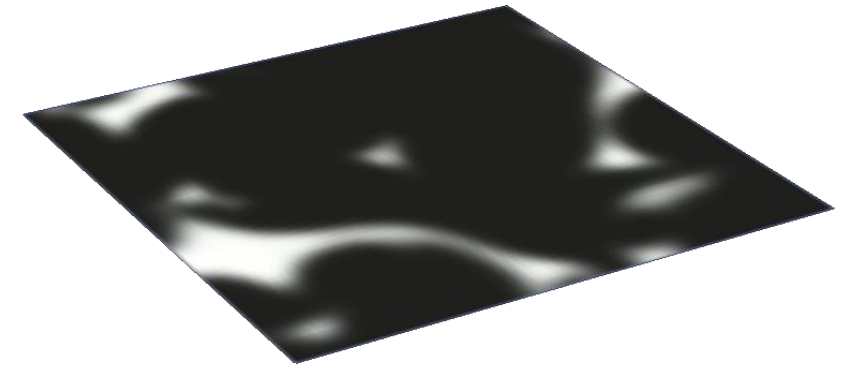
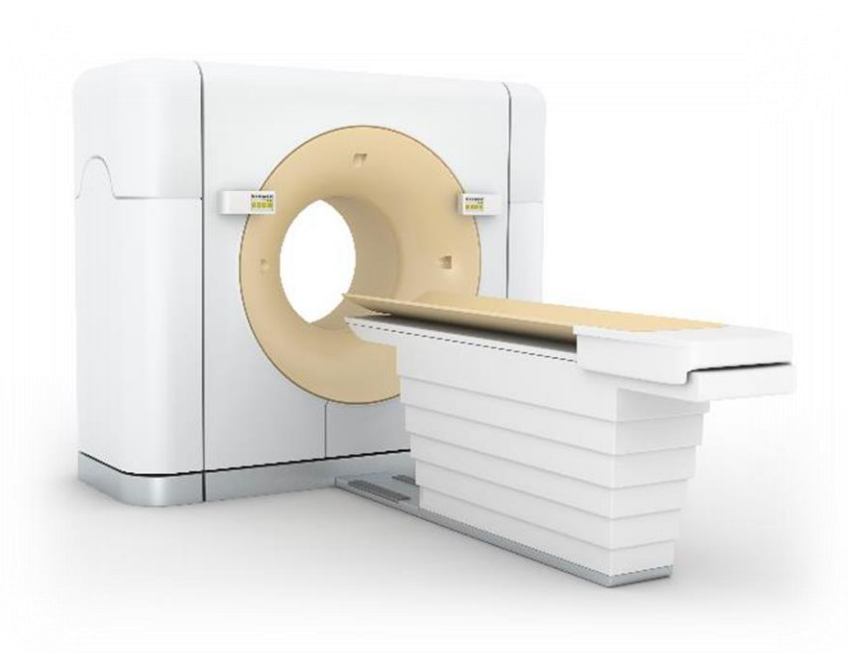
**3D Image Import
& Visualization**

**Segmentation
& Processing**

**Measurements
& Analysis**

**CAD & Image
Integration**

**Model
Generation**



Simpleware Software Solutions

**3D Image Import
& Visualization**

**Segmentation
& Processing**

**Measurements
& Analysis**

**CAD & Image
Integration**

**Model
Generation**



Simpleware Software Solutions

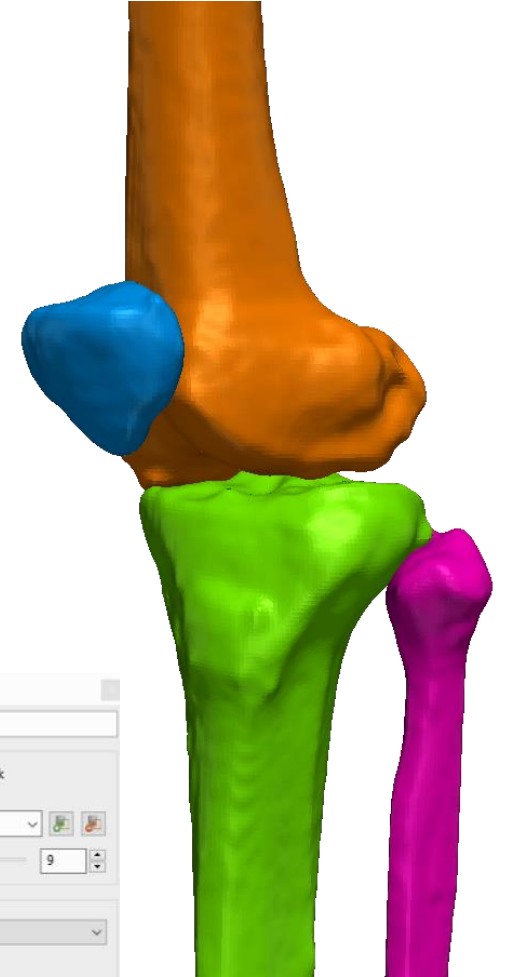
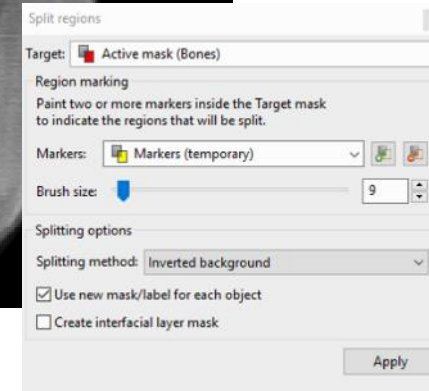
3D Image Import
& Visualization

Segmentation
& Processing

Measurements
& Analysis

CAD & Image
Integration

Model
Generation



Simpleware Software Solutions

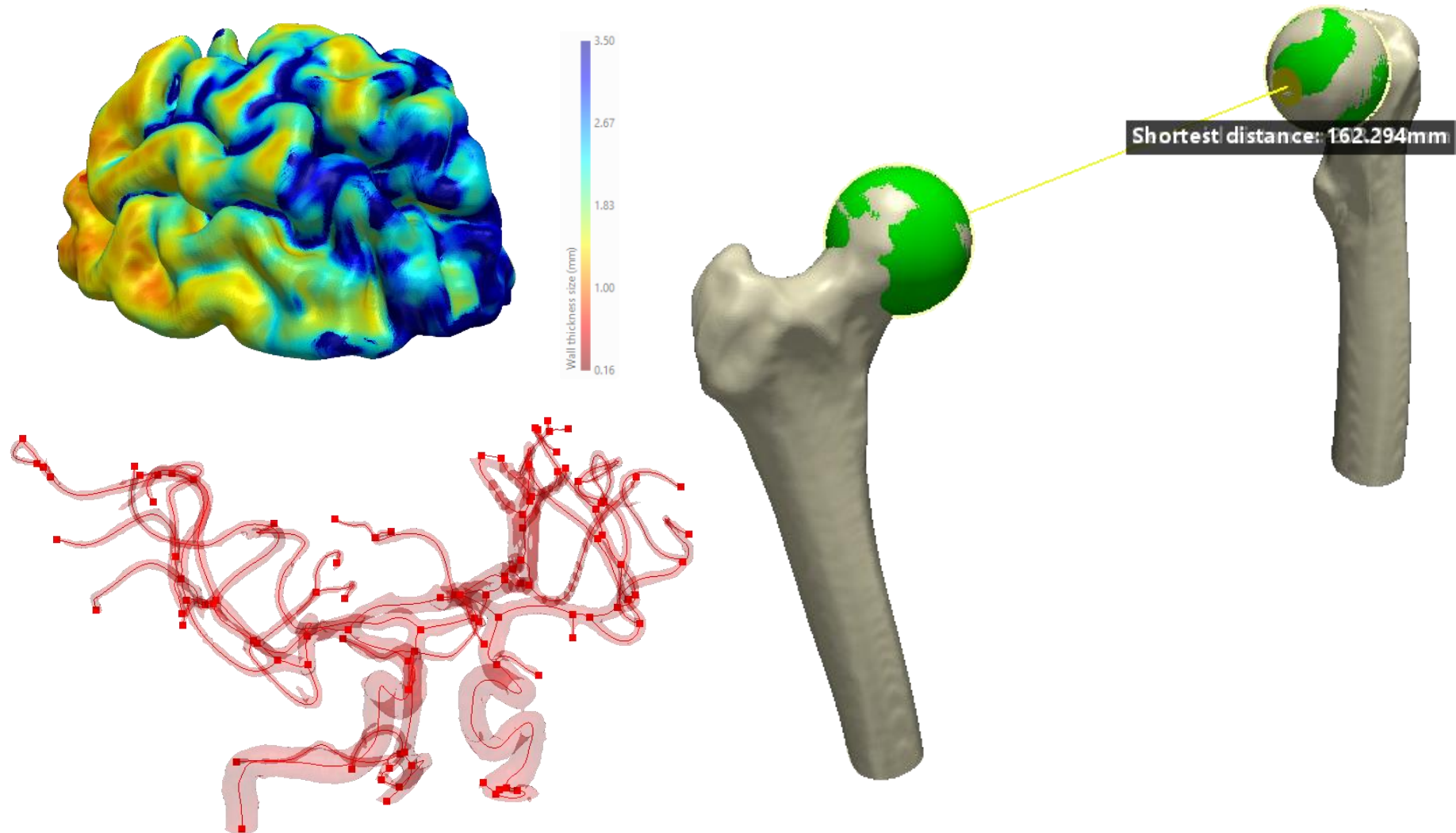
3D Image Import
& Visualization

Segmentation
& Processing

Measurements
& Analysis

CAD & Image
Integration

Model
Generation



Simpleware Software Solutions

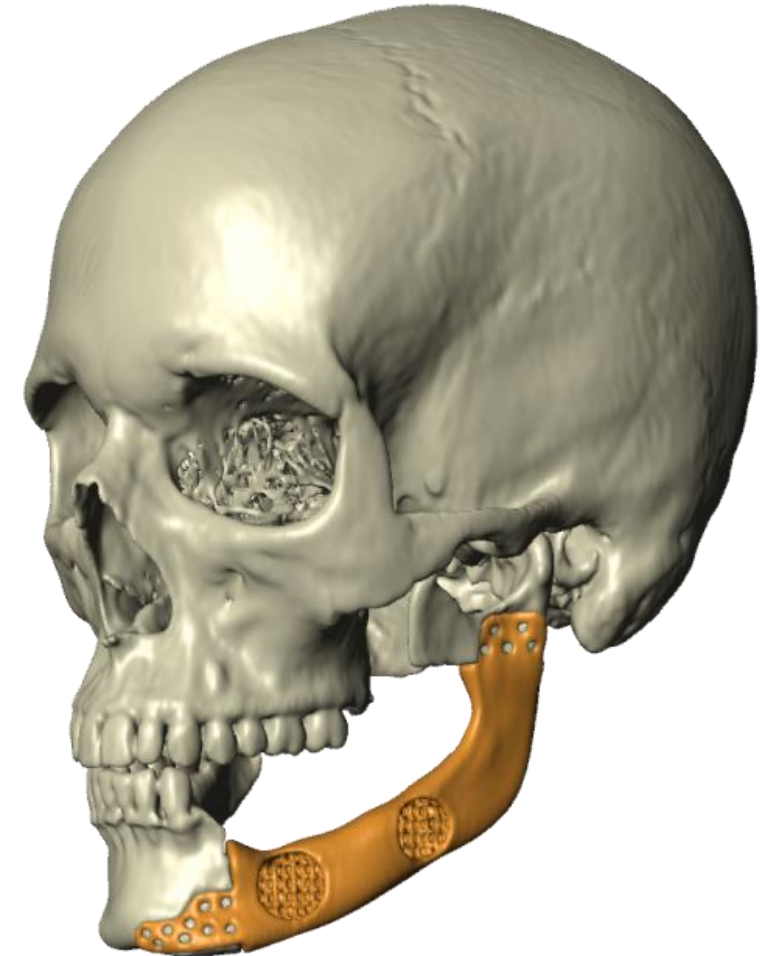
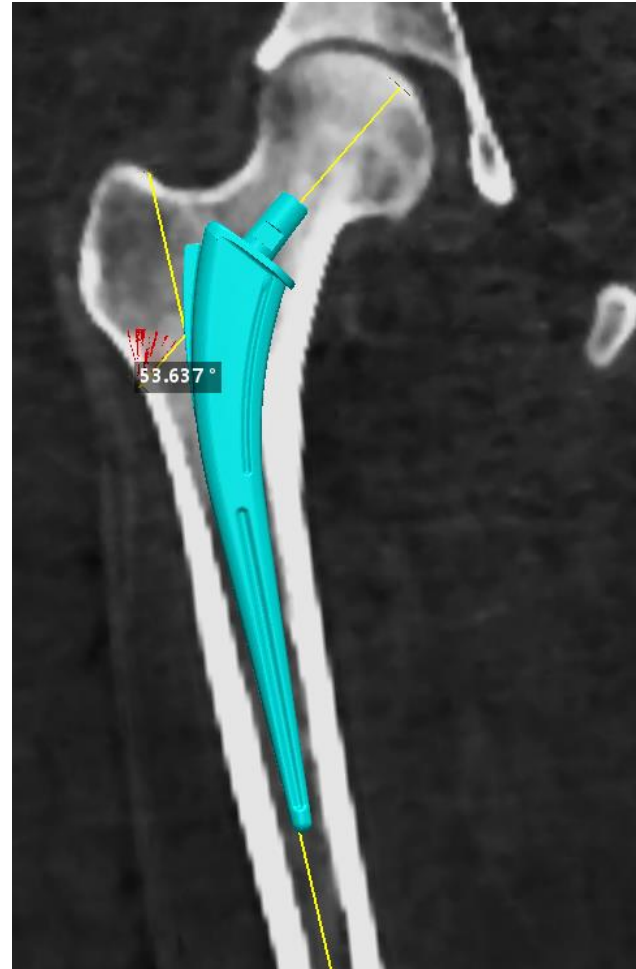
3D Image Import
& Visualization

Segmentation
& Processing

Measurements
& Analysis

CAD & Image
Integration

Model
Generation



Simpleware Software Solutions

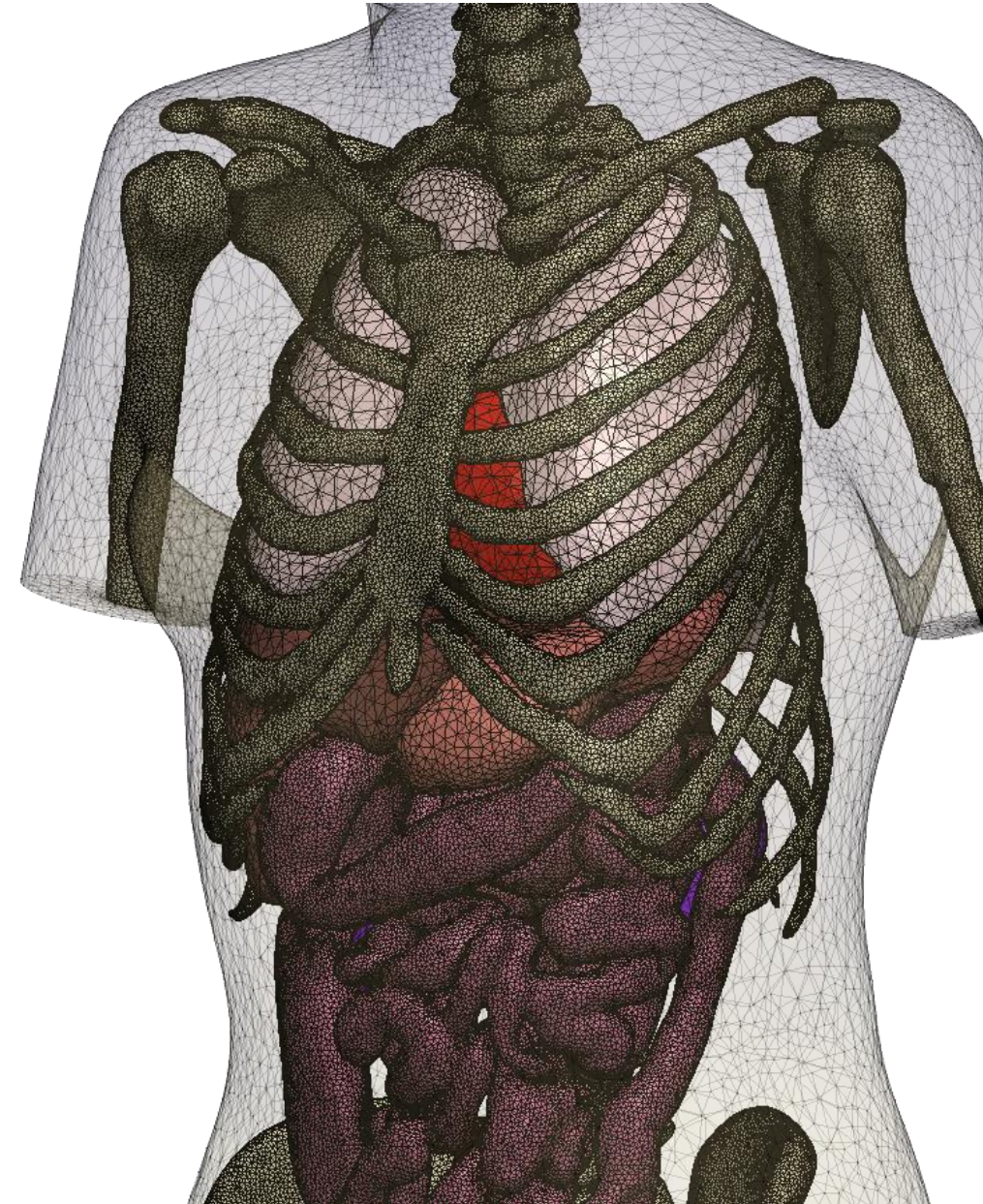
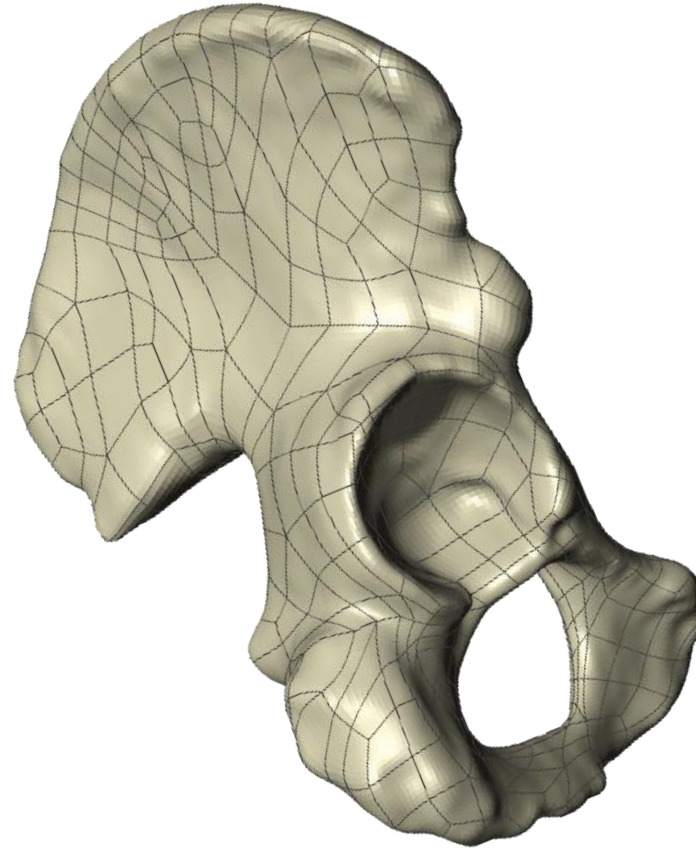
3D Image Import
& Visualization

Segmentation
& Processing

Measurements
& Analysis

CAD & Image
Integration

**Model
Generation**



See and Try Simpleware Software

See and Try Simpleware Software

- **Get a 30-day free trial**

- Receive a fully functional trial version of the full Simpleware product suite
- Sign up to the Synopsys Eval Portal: <https://eval.synopsys.com/>
- Contact support with any questions, for advice or help in setting up your workflow

- **Visit our workshops, webinars and exhibitions booths**

- See our list of upcoming events: www.synopsys.com/simpleware/news-and-events/events.html

- **Arrange a personal software demonstration**

- Get in touch with us to arrange a personalized software demonstration via WebEx with one of our expert Application Engineers using your own data

- **Contact us**

- simpleware@synopsys.com

