SYNOPSYS®

Simpleware Auto Segmentation Tools

AI-Powered Segmentation and Landmarking

AI-Powered Segmentation and Landmarking

Significantly Reduce Segmentation Time

Less Segmentation… More Innovation

- Reduce time spent on tedious manual segmentation
- Free up engineering time for more complex and high- value tasks
- Use Simpleware Auto Segmentation tools to accelerate your image to model workflow

Example dataset: good quality heart CT with contrast dye

Novice user:	12+ hours
Intermediate skill user:	6 hours
Expert user:	4 hours
Auto Segmentation:	**1.5 minutes (or faster)**

Consistency is Key

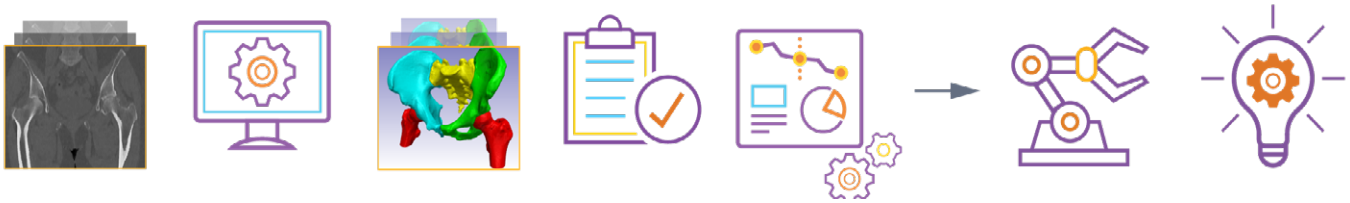
Achieve Consistent and Reliable Results

- Simpleware Auto Segmentation tools are powered by AI technology using Machine Learning (ML) algorithms
- Simpleware ML algorithms are trained by experts in 3D image segmentation for hundreds of hours
- Segmented anatomies and landmarks are meticulously reviewed, ensuring precise and reliable results
- Eliminate inconsistencies between different users and datasets, reducing the need for multiple reviews
- Shorten the learning curve for new technicians and engineers

Boost Your Throughput

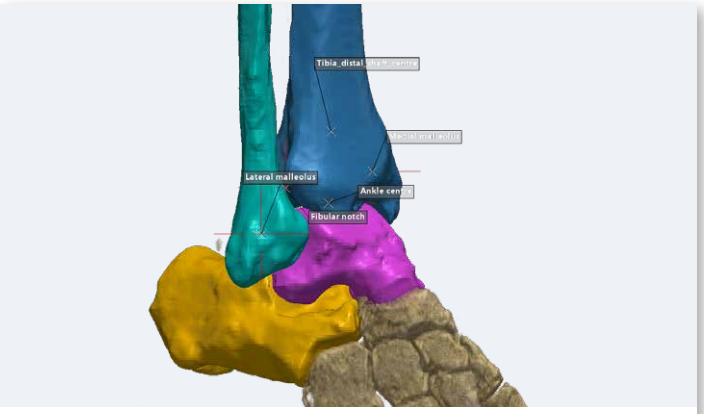
Efficiently Process Large Numbers of Datasets

- Simpleware Auto Segmentation tools allow you to scale up quickly and easily
- Process large batches of data 20–50 times faster, whilst achieving highly consistent results
- Reducing time on manual segmentation frees up engineering time for more complex tasks



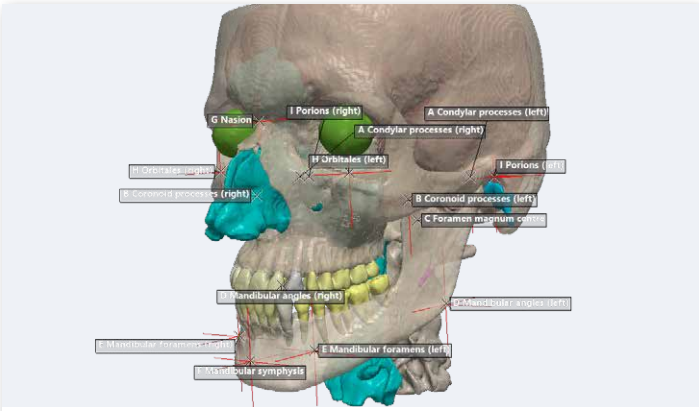
Anatomy-Specific Auto Segmentation Tools

Simpleware Auto Segmentation tools provide patient-specific image segmentation of Ankle, Craniomaxillofacial (CMF), Heart, Hip, Knee, Shoulder, and Spine data. The Machine Learning (ML) algorithm automatically detects regions of interest and identifies common key landmarks.



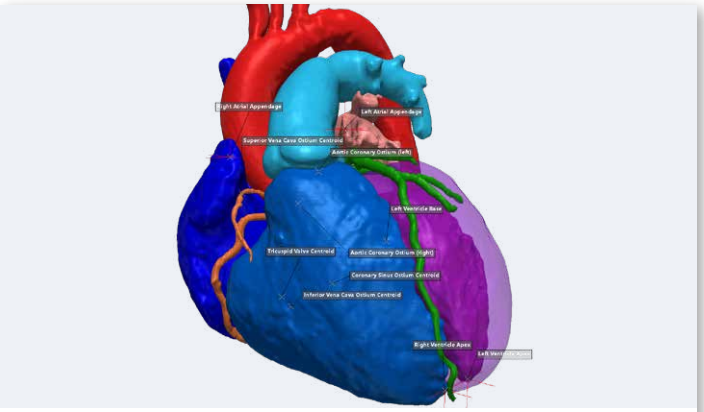
Ankle CT

- Suitable for use on CT scans
- Parts segmented: Talus, Calcaneus, Tibia, Fibula
- Landmarks placed on: Ankle Center, Fibular Notch, Lateral and Medial Malleolus



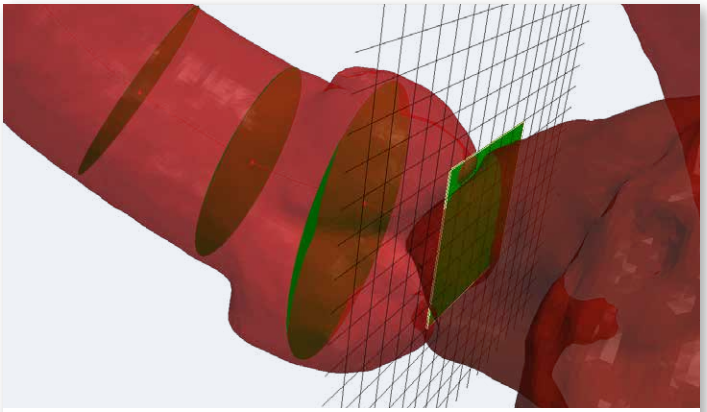
Craniomaxillofacial CT

- Suitable for use on CT scans
- Parts segmented: Cranium, Cranium (filled Orbitals), Mandible, Cervical Spine, Canines, Incisors, Molars, Ear Canals, Airways, Eyeballs, Optic Nerves, Mandibular Nerves, Cranial Cavity, and Skin
- Landmarks placed on: Mandible and Cranium



Heart CT

- Segmented parts: Left and Right Atriums and Ventricles, Aorta, Pulmonary Artery, Myocardium & Coronary Arteries
- Landmarks on: Aorta Commissure, Coronary Cusp, Coronary Ostium, Tricuspid Valve, Inferior & Superior Vena Cava Ostium, Left & Right Ventricle, Atrial Appendages



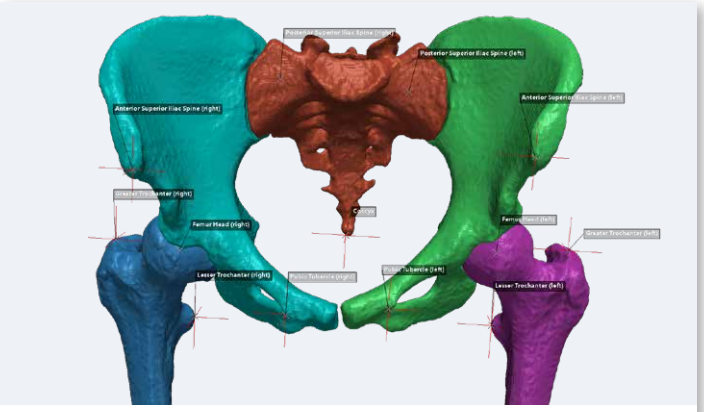
Heart Valve Analysis

- Efficient analysis of Aortic, Mitral, Tricuspid, and Pulmonary Valve location and dimensions
- Compute: Cusp locations, Valve planes, Ostia distances, diameter and plane of Aorta Sinus Valsalva, Aorta Sinotubular junction, and Ascending aorta, and Aortic and Pulmonary artery centerlines

Please note: Simpleware Auto Segmentation tools require a hardware specification with a NVIDIA graphics card with a minimum of 4GB of video memory.

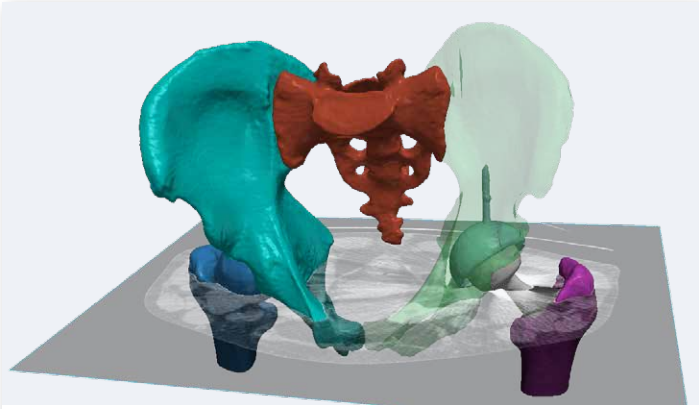
Anatomy-Specific Auto Segmentation Tools

Image segmentation can be a laborious manual process that occupies significant engineering resources. With Simplware AI-powered tools this process can be completed quickly and accurately in minutes. Accelerate image to model workflows and produce results with just one mouse click.



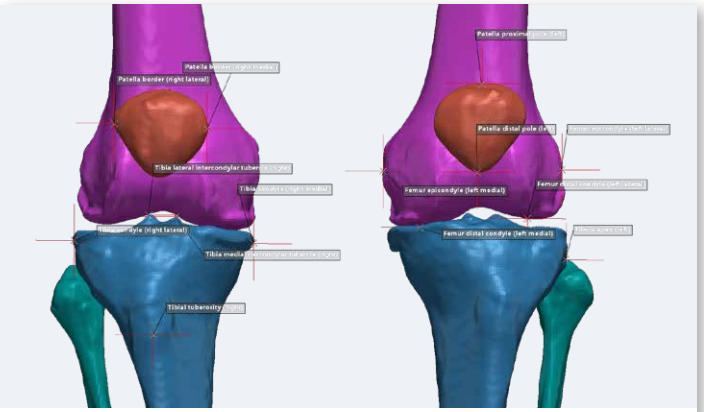
Hip CT

- Suitable for use on CT scans
- Parts segmented: Promixal Femurs, Pelvis, Sacrum
- Landmarks placed on: Pelvis, Coccyx, and Femurs



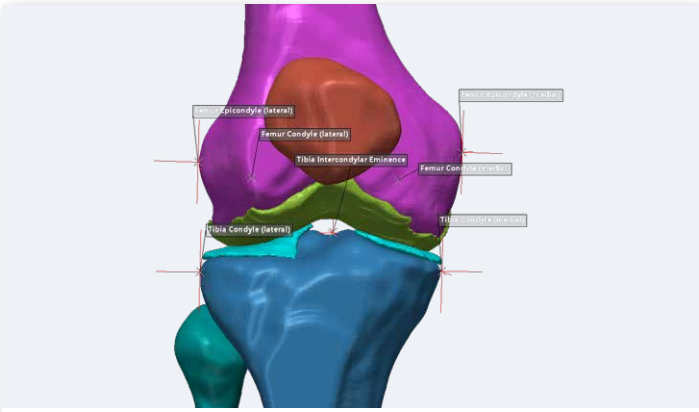
Hip Revision CT

- Suitable for CT scans
- Deals with images with severe metal artifacts
- Parts segmented: Proximal Femurs (including Cancellous Bone), Pelvis, Sacrum and Metal Components
- Landmarks placed on Pelvis, Coccyx, and Femurs



Knee CT

- Suitable for CT scans
- Parts segmented: Femur, Tibia, Fibula, Patella, and Fabella
- Landmarks placed on Femur, Tibia, Patella, and Fibula



Knee MRI

- Suitable for PD weighted, T1 Coronal and T2 Sagittal MRI scans
- Parts segmented: Femur, Tibia, Fibula, Patella, and associated Cartilage
- Landmarks placed on Femur, Tibia, Patella, and Fibula

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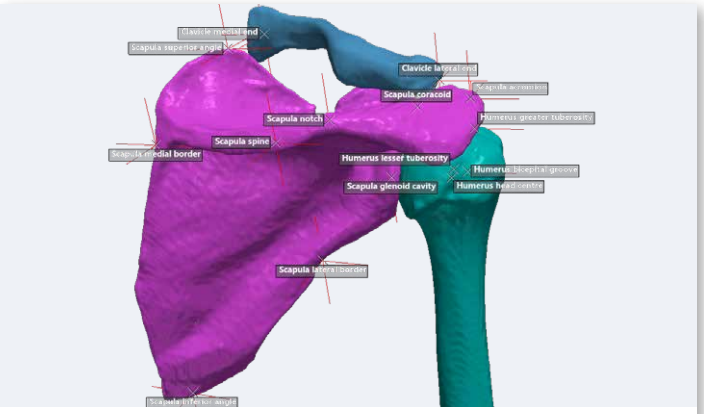
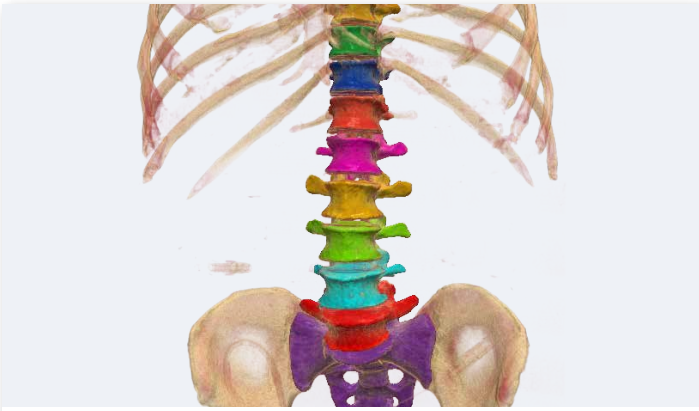
Anatomy-Specific Auto Segmentation Tools

All Simpleware Auto Segmentation tools include a user-defined selector diagram to easily select which anatomies to segment, and which landmarks to include. Further automate your processes with customized scripts and plug-ins, making it straightforward to scale up your workflows.



Shoulder CT

- Suitable for use on CT scans
- Parts segmented: Humerus, Scapula and Clavicle
- Landmarks placed on: Humerus, Scapula and Clavicle



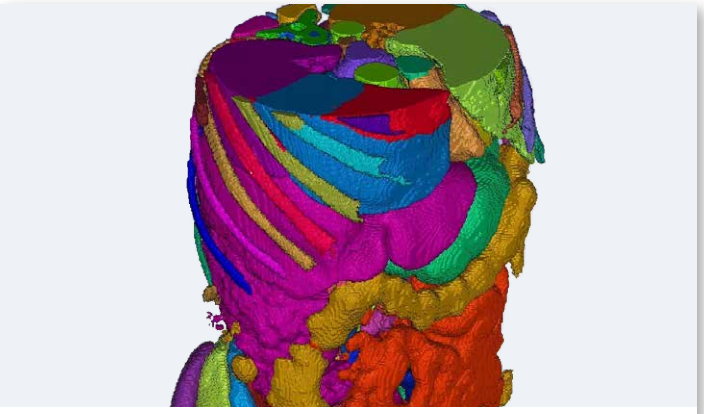
Spine CT

- Suitable for CT scans
- Parts segmented: any part of the Spine and the Sacrum

Please note: Simpleware Auto Segmentation tools require a hardware specification with a NVIDIA graphics card with a minimum of 4GB of video memory.

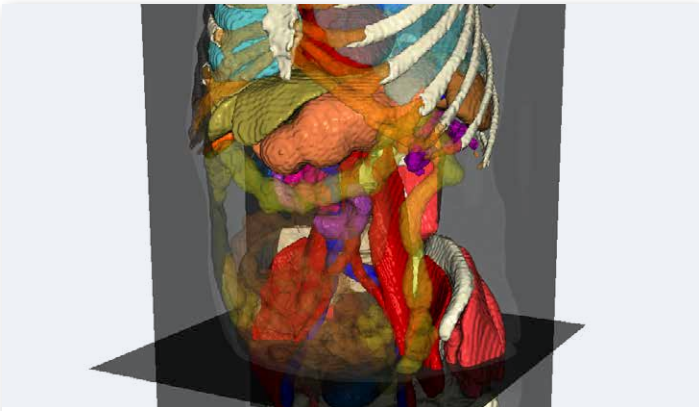
External AI Models

Run externally trained AI models within the Simpleware software evnironment. Integrate your own AI segmentation models through Simpleware Bundles or use popular open-source models like MONAI Bundles, TotalSegmentator or nnU-Net. You can then use the other tools within Simpleware software to post-process the results as required.



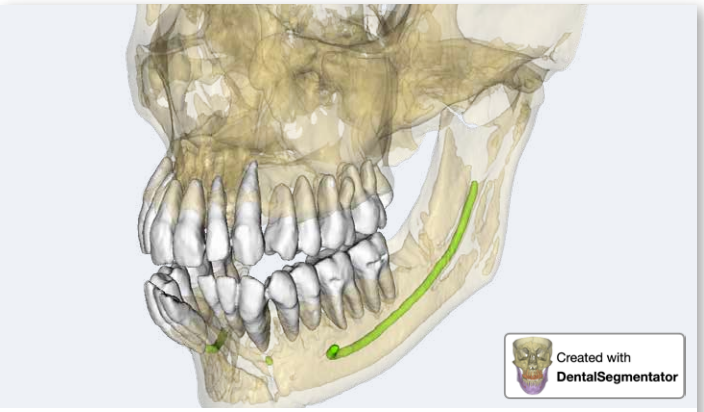
Nvidia MONAI Bundles

- Import and run externally trained AI segmentation models using MONAI bundles
- From the MONAI Model Zoo or user-trained



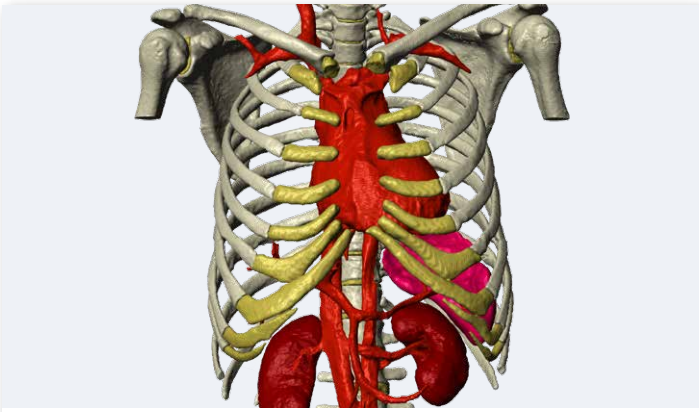
TotalSegmentator

- Run the popular open-source AI models from TotalSegmentator for full body segmentation
- Access either CT or MRI models



nnU-Net

- Import and run externally trained AI segmentation models created with the nnU-Net deep learning method
- Effortlessly import your model - contact us to get started!



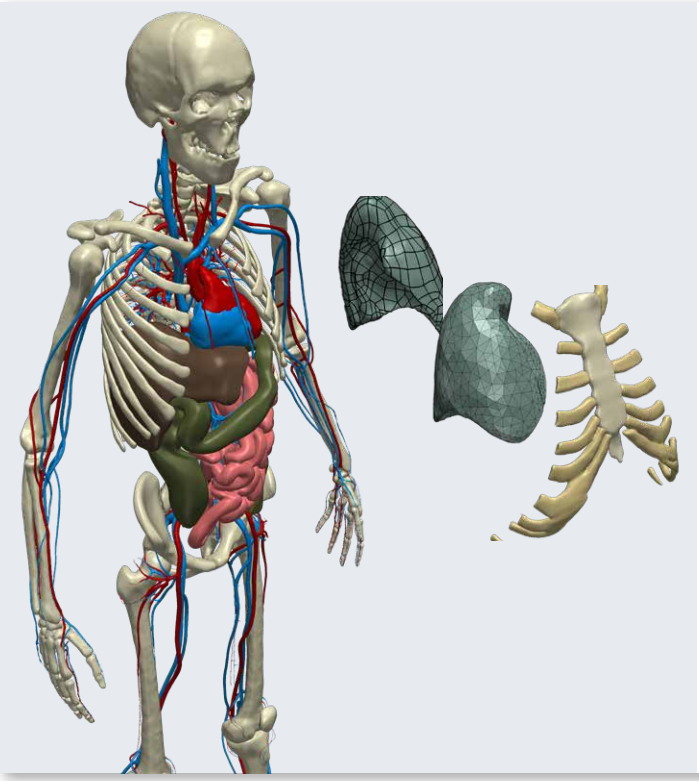
Simpleware Bundle

- Package a trained AI models into Simpleware bundles
- Import and run inference within Simpleware

Please note: Simpleware Auto Segmentation tools require a hardware specification with a NVIDIA graphics card with a minimum of 4GB of video memory.

Fully Customized Solutions

Harness the power of our expert engineering knowledge and AI/ML to create an automated solution purpose-built for your needs. Our team will use problem-specific data, and work with you to deliver a fully customized solution for your current processes.



In Addition to Auto Segmentation, Your Custom Solution Can Include Fully Automated:

- Image processing (such as noise reduction, smoothing, or artefact reduction)
- Landmarking
- Measurements and statistics
- Report generation
- Models meshed and ready for 3D printing, CAD or simulation
- And much more...

Want to Know More?

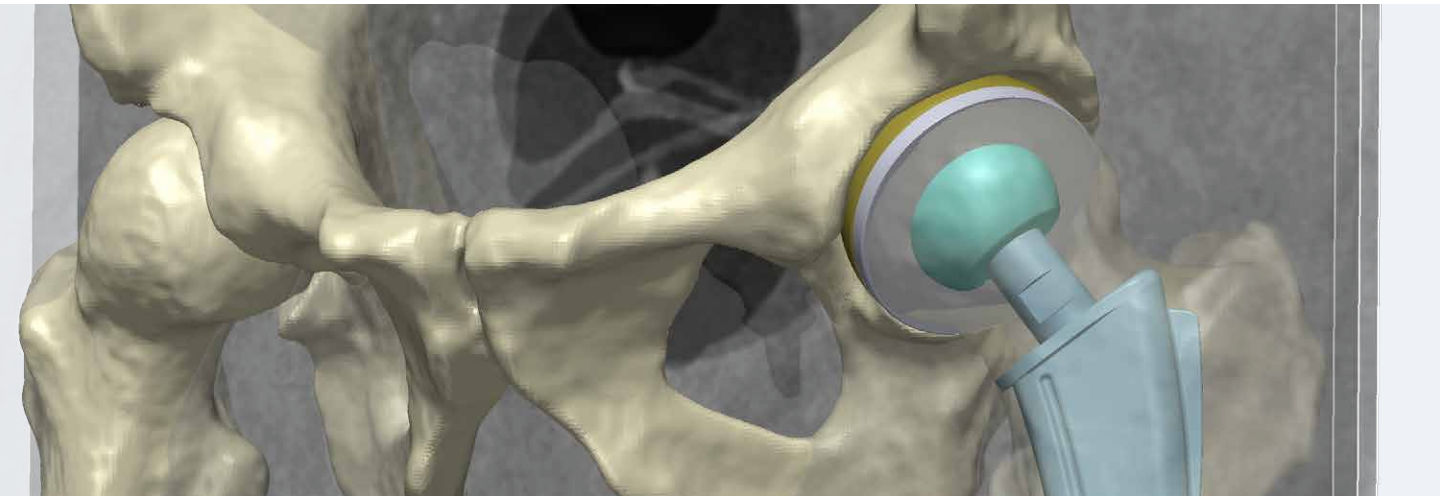
Show us your processes and work with our engineers to fulfill your requirements and create a perfect solution.

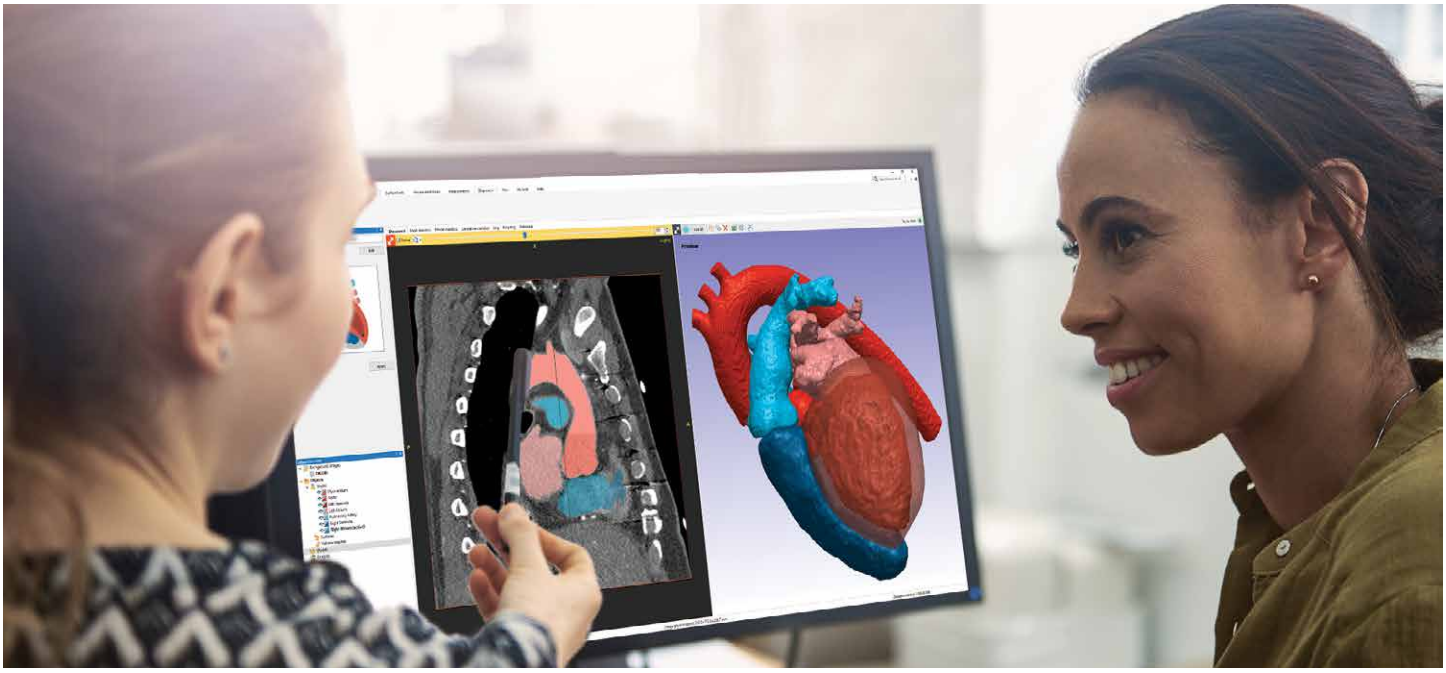
The Simpleware Solution

Simpleware Auto Segmentation tools seamlessly integrate with all functionalities in Simpleware software. Post-process AI segmentation with a wide range of tools for visualization, measurements and statistics, right through to generating high-quality models for 3D printing, design and simulation. The intuitive interface provides quick-and-easy access to a range of powerful tools.

Speed Up Workflows with Scripting

The scripting options in Simpleware software help save time and effort with common workflows. All Simpleware functionality is accessible from a fully documented scripting API, with bindings available for Python and C#. Use this API to automate repeatable workflows, build wizards and integrate custom plugins. Generate code without any prior experience by using the macro recording functionality.





State-of-the-Art Technology

Our industry-leading 3D image processing platform leverages patented technology and enables comprehensive analysis of even the most complex anatomical scans. Increase confidence in clinical decision-making through reliable, repeatable software workflows

Expert Support for your Requirements

All licenses come with full support from our team of experts. Our engineers can help you develop your unique and customized workflows, ensuring your use of the software is as efficient as possible, and your final output matches your requirements. Work with our engineers to solve your challenges and find the best solution for your needs.

Training at All Levels

Receive step-by-step training on all areas of Simpleware software. We offer classroom training courses at local Synopsys offices or at your site, as well as customized one-to-one sessions at your place of work, or through web meetings. Our interactive courses include a combination of lectures. demos and hands-on tutorials.

Try Simpleware Software

Try the software for yourself with a free evaluation version, available on our website. The trial is fully functional and gives you access to the complete Simpleware software suite, a full range of tutorials and technical support.

The Auto Segmentation tools in this brochure are intended for non-clinical research use only, and have not been cleared for use as a medical device in accordance with U.S. Food & Drug Administration (FDA) 510(k) or European Union CE marking standards.

For more information, go to **www.synopsys.com/simpleware**

Email: **simpleware@synopsys.com**

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