

Simpleware Automated Solutions

AI-Enabled Image Processing for Orthopedics and
Cranio-maxillofacial Applications



Simpleware Automated Solutions

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 automated solutions to accelerate your image to model workflow

Example dataset: good quality MRI scan of a knee

Novice user:	3 hours
Intermediate skill user:	1.5 hours
Expert user:	40 minutes
Simpleware AS Ortho/CMF:	2 minutes (or faster)

Consistency is Key



Achieve Consistent and Reliable Results

- Simpleware automated solutions 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

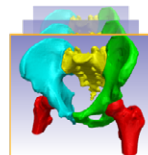


Efficiently Process Large Numbers of Datasets

- Simpleware automated solutions 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



Simpleware
Automated Solutions



Quality
Assurance



Automated Analysis
& Reporting



Optimized
Product Design



More Time
for Innovation

Anatomy-Specific Automated Segmentation

Simpleware AS Ortho/CMF (Auto Segmenter for Orthopedics and Craniomaxillofacial Applications)

Simpleware AS Ortho/CMF provides patient-specific automated segmentation tools for Ankles, Heads, Hips, Knees, and Shoulders. The software rapidly segments chosen anatomies and also identifies common landmarks.

What is currently a laborious process that occupies significant engineering resources can now be completed quickly and accurately. Use Simpleware AI-powered segmentation tools to accelerate your image to model workflows and produce results with minimal mouse clicks.

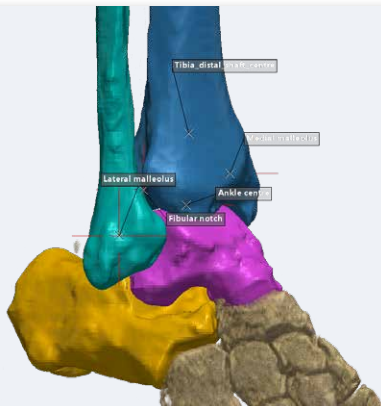
All Simpleware AS Ortho/CMF segmentation tools include a user-defined selector diagram to easily select which anatomies to segment, and which landmarks to include.

Further automate your processes with customized scripts and plug-ins, making it straightforward to scale up your workflows. All functionality within Simpleware products is available from a fully documented API, with bindings available for Python and C#.

Please note: Simpleware AS Ortho/CMF requires a hardware specification with a NVIDIA graphics card with a minimum of 4GB of video memory.

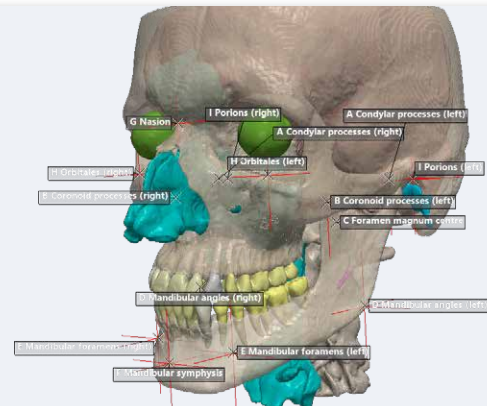
Benefits of Using Simpleware AS Ortho/CMF

- **Fully automated:** One-click solution to eliminate hours spent on tedious manual processes.
- **Fast and effective:** Get results in 1–3 minutes on a standard engineering specification laptop.
- **Accurate and reliable:** Simpleware ML algorithms are trained by experts and verified by clinical professionals.
- **Secure:** Protect your patient data on your local hardware, avoiding the need to transfer confidential data onto servers outside of your control.
- **Consistent and repeatable:** Eliminate inconsistencies between users and the need for multiple reviews.
- **Scalable:** Boost your throughput, and efficiently process large numbers of datasets 20–50 times faster than with conventional methods.
- **Less Segmentation - More Innovation:** Free up engineering time for more complex and high-value tasks.



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

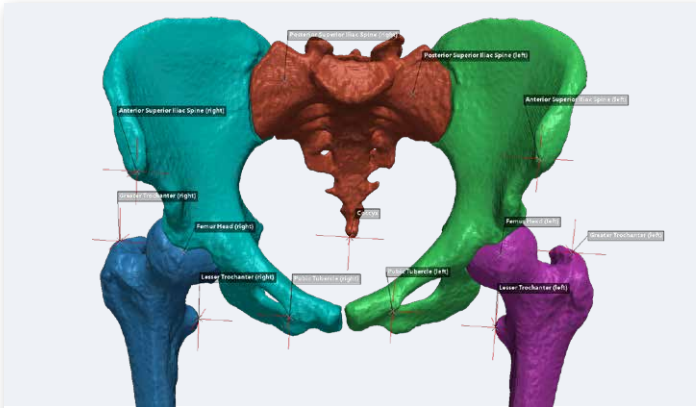


Craniomaxillofacial CT

- 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

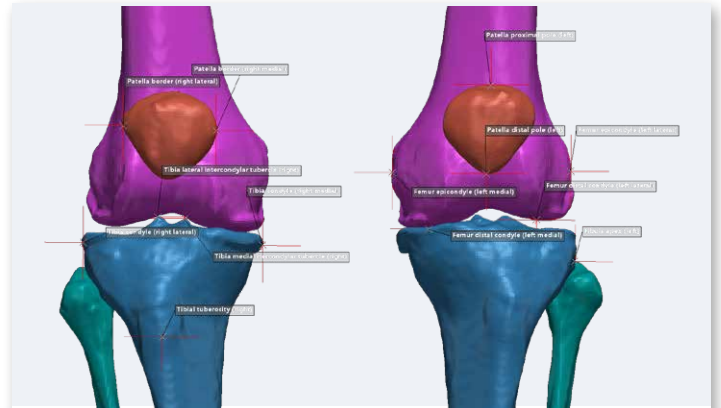
Anatomy-Specific Automated Segmentation

Simpleware AS Ortho/CMF (Auto Segmenter for Orthopedics and Craniomaxillofacial Applications)



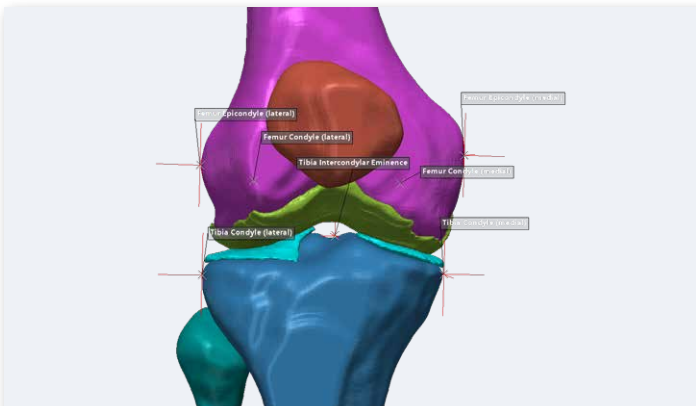
Hip CT

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



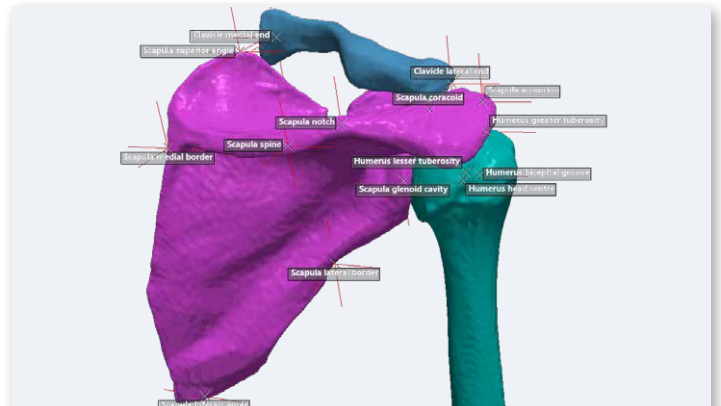
Knee CT

- 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

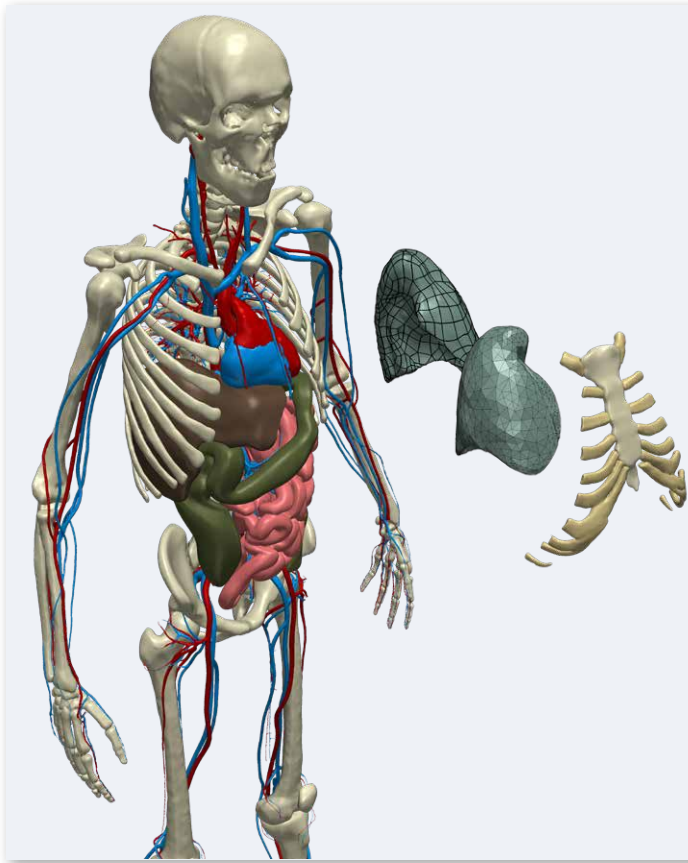


Shoulder CT

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

Working with Different Anatomies?

Customized AI/ML Solutions with Simpleware Custom Modeler



Simpleware Custom Modeler is an automated solution purpose-built for your needs using problem-specific data and techniques. Harness the power of Simpleware software and our expert engineering knowledge by working with our team to create a tailored solution for your current processes.

In addition to automated 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?

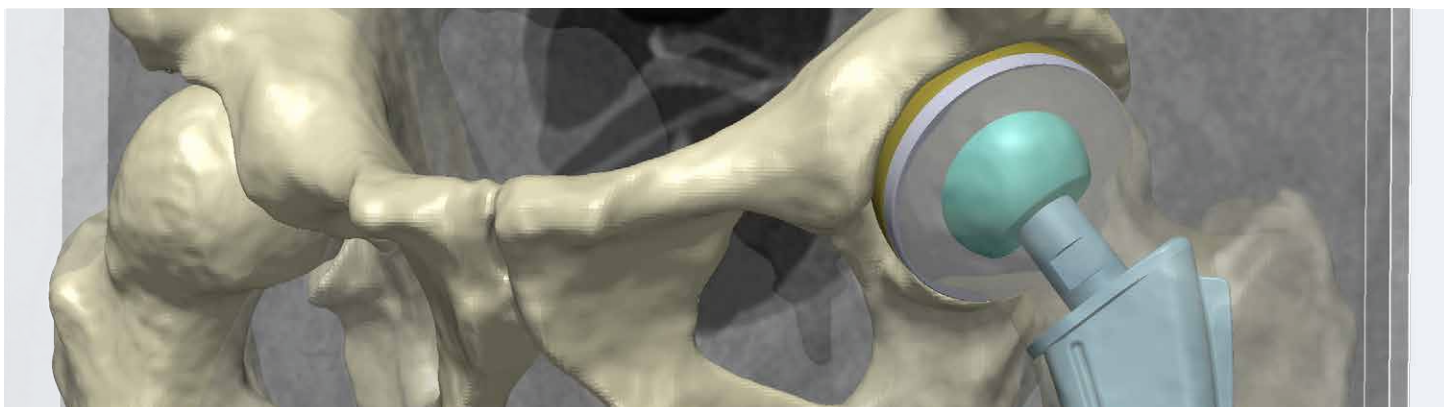
Show us your current process and work with our engineers to fulfill your requirements and create a perfect solution.

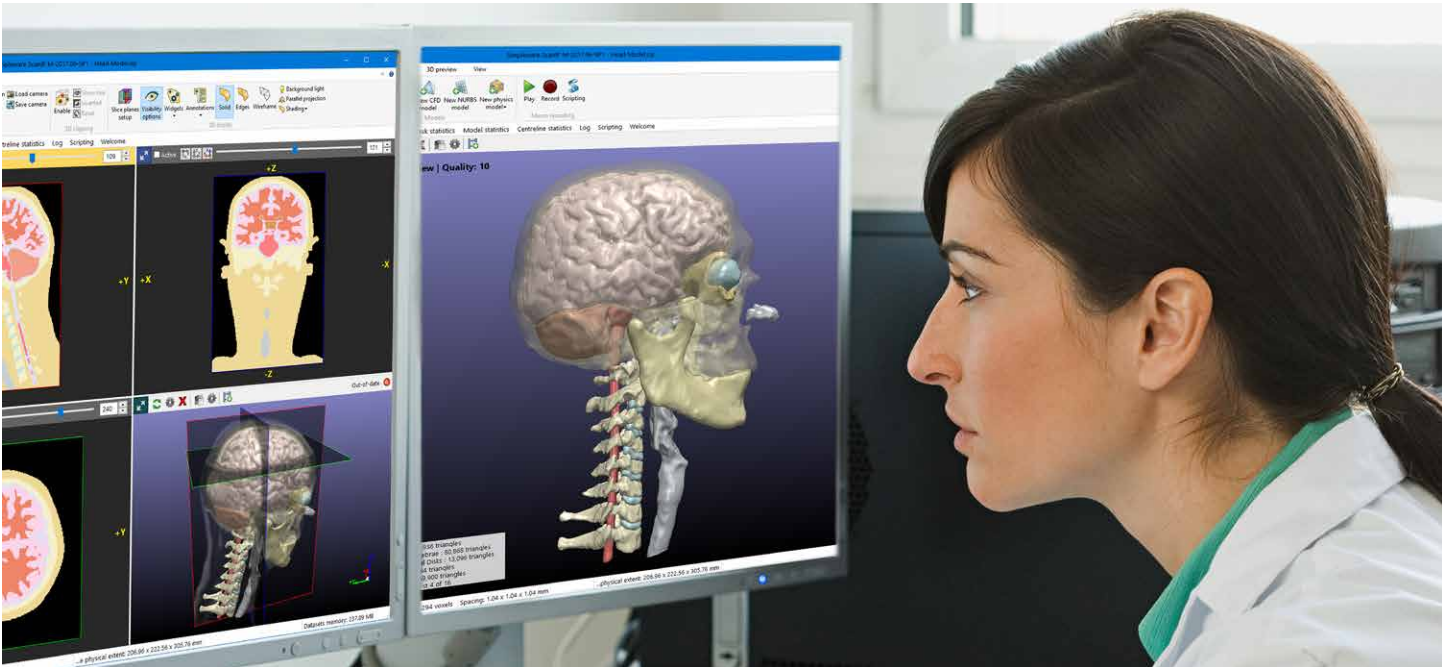
The Simpleware Solution

Simpleware AS Ortho/CMF seamlessly integrates into Simpleware ScanIP software, the industry-leading 3D image processing platform. Accurately process DICOM data with a wide range of tools for visualization, segmentation, 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.

Improve Medical Device Design Workflows

Simpleware software is ideal for rapidly testing out different design iterations involving medical and consumer products and the human body. Achieve reliable results every time with straightforward import and export of CAD models. Prepare models for 3D printing with dedicated tools and export formats. Generate guaranteed high-quality FE meshes to evaluate biomechanical performance under real-world conditions.





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 software modules 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

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