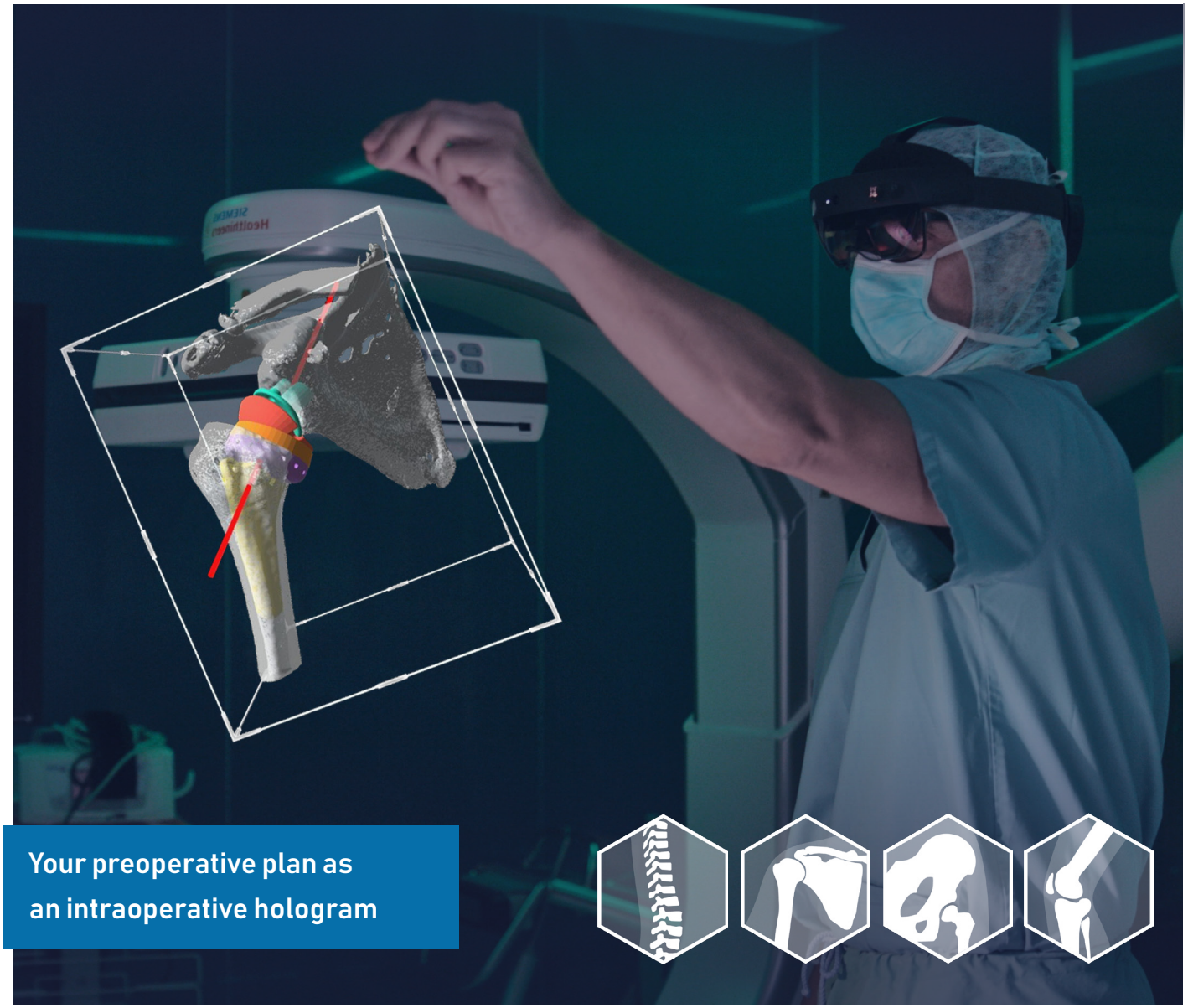
mediCAD®

mediCAD
Mixed Reality



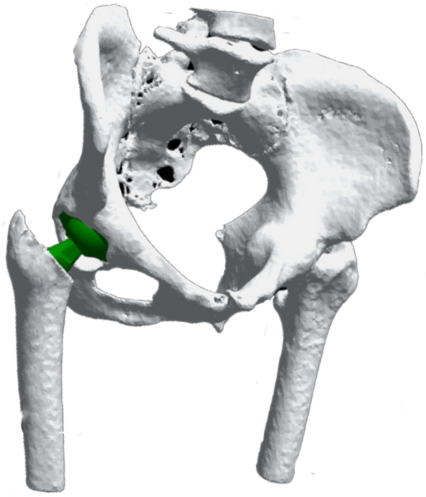
Your preoperative plan as an intraoperative hologram

An innovative software for pre, intra and post operative visualization of your mediCAD 3D plan:

- Knee
- Hip
- Shoulder
- Spine

mediCAD
Mixed Reality

mediCAD® MR is an preoperative plan software for intraoperative visualization of your preoperative planning. It is used on the Microsoft HoloLens 2, a mixed reality headset. This allows you to take your digital planning into the operating room and access it at all times. Unlike a computer monitor, the visualization of your planning can be displayed in true three dimensions using mediCAD® MR, can be adjusted in various ways, and treated like a physical object.



What is Mixed Reality?

Mixed reality solutions allow the user to enhance their real environment with virtual content. In contrast to virtual reality (where the user completely immerses himslef in a virtual world and moves within it), the actual analog environment in mixed reality remains completely visible. However, it is supplemented with holographic 2D and 3D elements that can be placed in the room like real objects, remain there, and interact with the analog environment.

That's as well how mediCAD® MR works. As a surgeon, you have the ability to view a life-size 3D hologram of the planned anatomical region. You can grab, move and scale this hologram like a real object. This allows you to have the plan constantly in front of you both pre- and intraoperatively, and to capture all of its details.

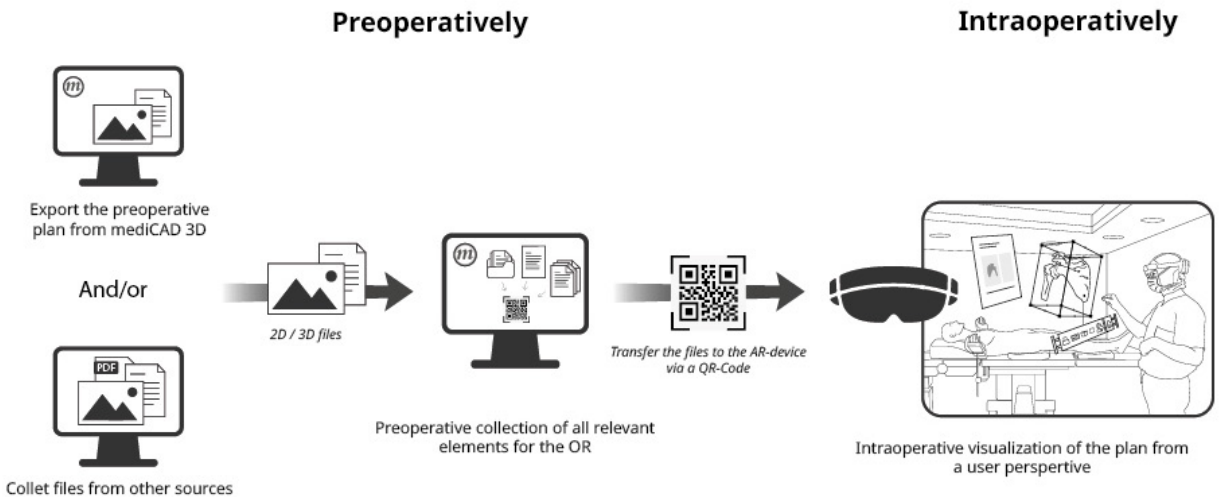
- ✓ Seamless integration into the mediCAD® 3D workflow
- ✓ Individually configurable intraoperative visualization
- ✓ Various posibilities to adapt the hologram visualization
- ✓ Sterile and contactless operability
- ✓ Collaborative work possibilities

Functions

1. Seamless integration into the mediCAD® 3D workflow

mediCAD® MR can be used with all mediCAD® 3D modules. You can transfer your 3D plan, including all relevant content, directly into mixed reality and view it intraoperatively and true to size.

Your planned implants are transferred along with their anatomical position manufacturer-independently. mediCAD® MR provides an intuitive workflow for quick and easy display of all your planning content intraoperatively.

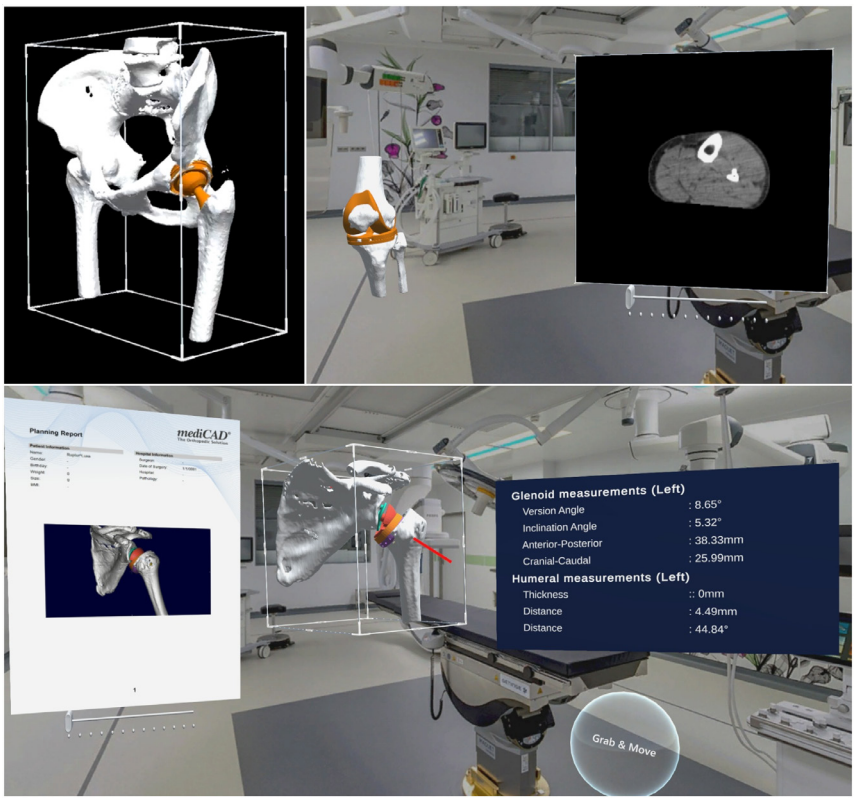


2. Individually configurable intraoperative display

To ensure best intraoperative support, you have the possibility to individually configure the content you want to display intraoperatively.
You can retrieve these either from a local storage or from a connected PAC system.

For example, the following elements are available for display:

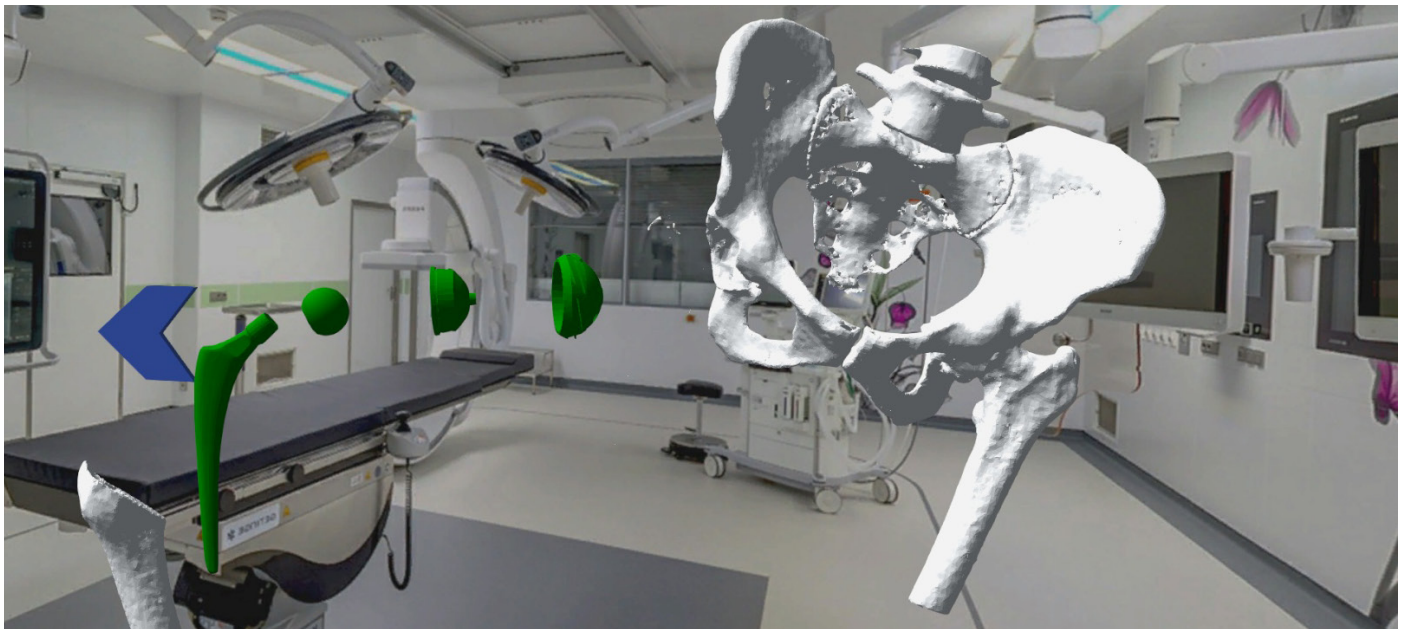
- ✓ 3D model of the planned body region
- ✓ 3D model of the preoperative anatomy
- ✓ Planning report
- ✓ Preoperative measurements
- ✓ CT scans
- ✓ X-rays
- ✓ Other images or files, such as surgical instructions



3. Various adjustments of hologram display

To get the most out of the three-dimensional display of your plan, the software includes various possibilities to configure the display of the hologram:

- ✓ Adjusting the transparency of the bony structure
- ✓ Segmentation of implants and bones to view them separately
- ✓ Hiding areas via clipping sphere
- ✓ Automatic alignment according to anatomical planes
- ✓ Fine-tuning of hologram placement and rotation



4. Sterile and contactless usage

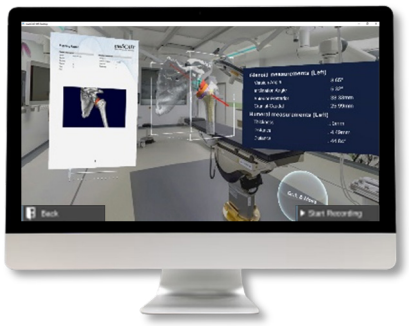
The software can be operated without any physical contact and is therefore completely sterile.

Buttons and holograms can be grasped and moved through an intuitive gesture control, just as if they were real physical elements.

To ensure full functionality even though your hands are busy, the software can also be operated via voice control.

5. Collaborative working

mediCAD® MR gives you the possibility to share your mixed reality experience with others!

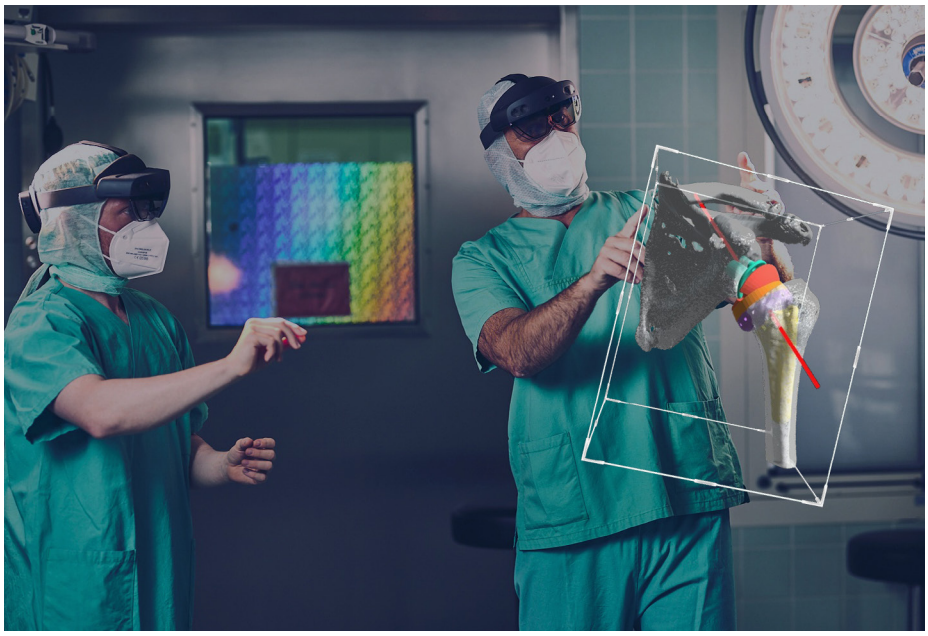


Live streaming
The software allows you to transmit your field of view, including all holograms, in real-time from the HoloLens to a PC.
This gives you the possibility to let other people participate in your surgery without them to be actually physically present in the operating room.

Video recording
In addition, you have the option to record and save a video capture, for example for educational purposes or documentation.

Virtual meetup
The live streaming of the video is also possible in both directions, allowing you to connect other people via PC to participate in the surgery. This way, you can also support colleagues from a distance during their surgeries or seek their advice.

Shared holograms
Do you want to analyze the planned procedure together with your assistant doctor, or show your patient in detail how the procedure is performed? The software allows you to pair multiple HoloLenses and access the same holograms simultaneously in order to edit them.

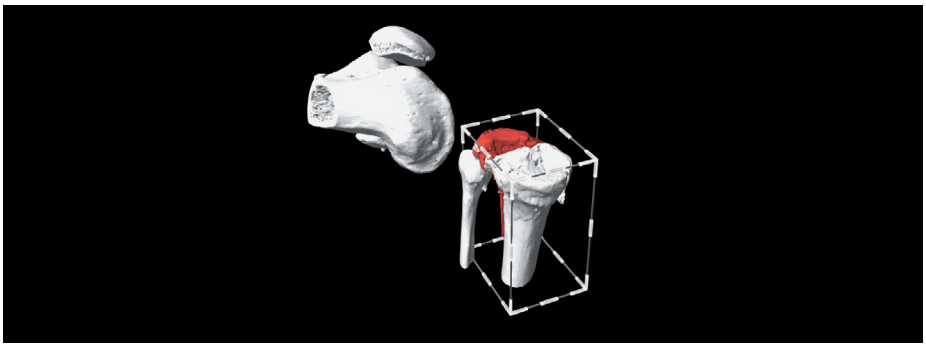


Application areas:

Preoperative

- **In-depth analysis of pathology**

Even the smallest details that are otherwise hidden can be viewed in the preoperative state.



- **Visualization and review of the plan**

The real three-dimensional visualization of the plan allows for a detailed view of the desired outcome.

- **Patient empowerment**

Use mediCAD® MR to involve your patients into the surgery.

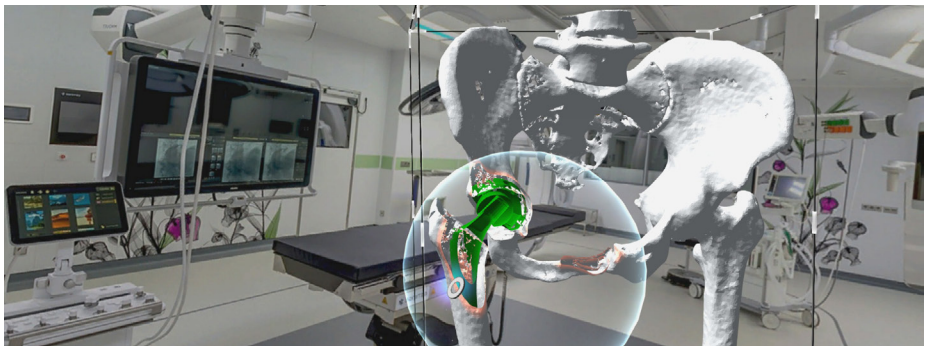
Intraoperative

- **Visualization of planning content**

Reduce your necessary surgical screens and save time by displaying all important information directly into your field of view, without having to step away from the patient.

- **Live streaming of the surgery**

Allow other people to participate in the surgery by live streaming the HoloLens view.



- **Participation of external people**

Get support from people outside the operating room by letting them attend virtually.

Postoperative

- **Visual postoperative review**

Visualize the result of the surgery afterwards and compare it to the preoperative or planned situation.

- **Documentation and training**

Save video recordings of the HoloLens field of view, including displayed holograms, in order to document the surgery or for educational purposes.

- **Patient empowerment**

Even after the procedure, you can use mediCAD® MR to involve the patient and ensure they leave with a sense of satisfaction.

Intuitive use of mediCAD MR

At mediCAD®, we understand that in the hectic hospital environment, there is often little time to become familiar with new technologies. However, having a good understanding of one's tools is essential when treating patients. Therefore, we have set ourselves the goal of providing you with mediCAD® MR, a highly innovative yet easy and intuitive to use software.

Interactive Tutorial
Like all mediCAD® products, MR also comes with a comprehensive user training. If you have any questions during the application or want to practice the workflow, the software also offers an interactive tutorial where you will be guided through the various functions by an avatar and can be started either prior to the first use or during the workflow.

You want to see more?

Scan the following QR-Code to see mediCAD MR live and in motion:

Or contact us directly for a product presentation or further questions:

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Manufacturer information

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Hardware Recommendations

mediCAD® MR requires a Microsoft HoloLens 2® with at least 500 MB of free device storage. Additionally, a PC with Windows 7 SP1 or 10, 64 Bit, a current processor with at least 2.0 GHz, and a minimum of 8 GB of RAM is needed. The recommended display resolution is Full HD. A diagnostic monitor is not required.

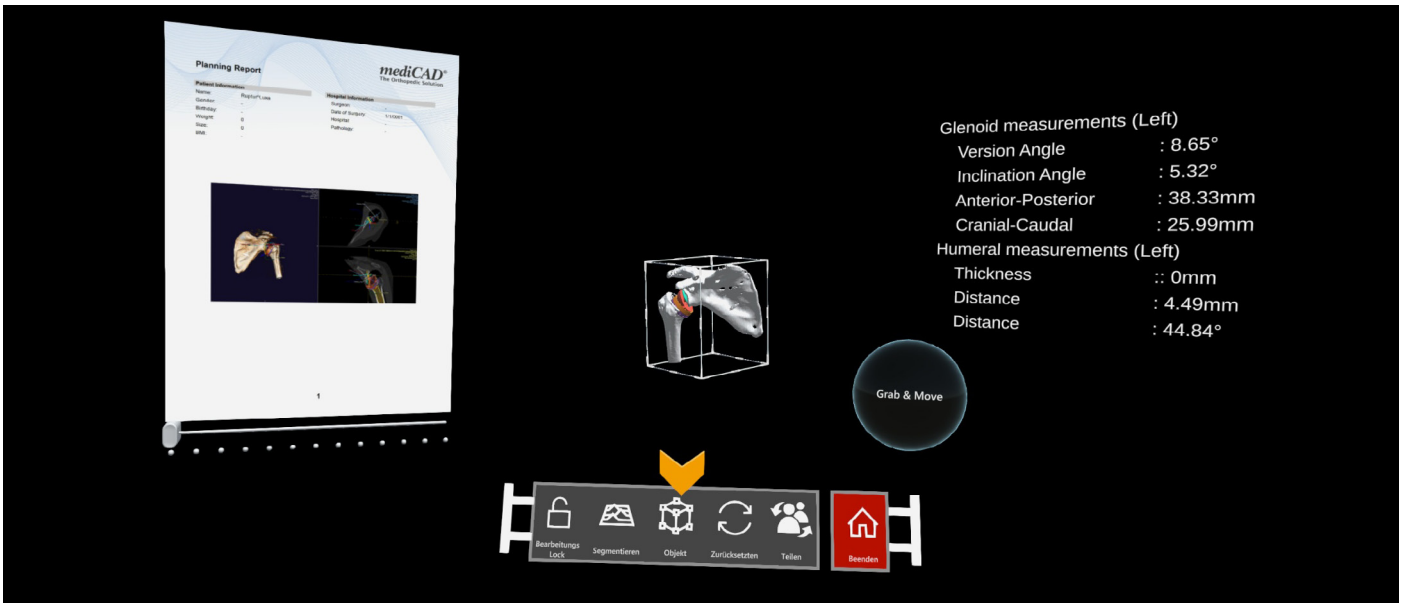
Training

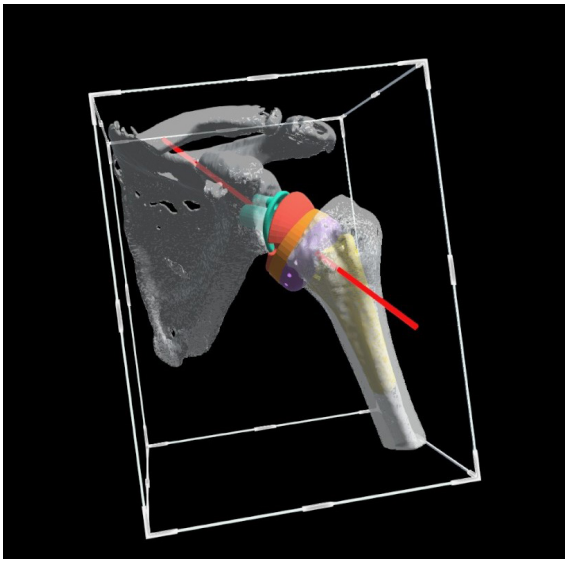
mediCAD® MR requires no previous knowledge and is easy to learn. The user is guided intuitively through the program with all instructions displayed in plain language on the interface. Training usually requires approximately three to four hours.
mediCAD® Hectec is ready to provide skilled training for every module. Both on-site and online trainings are available.

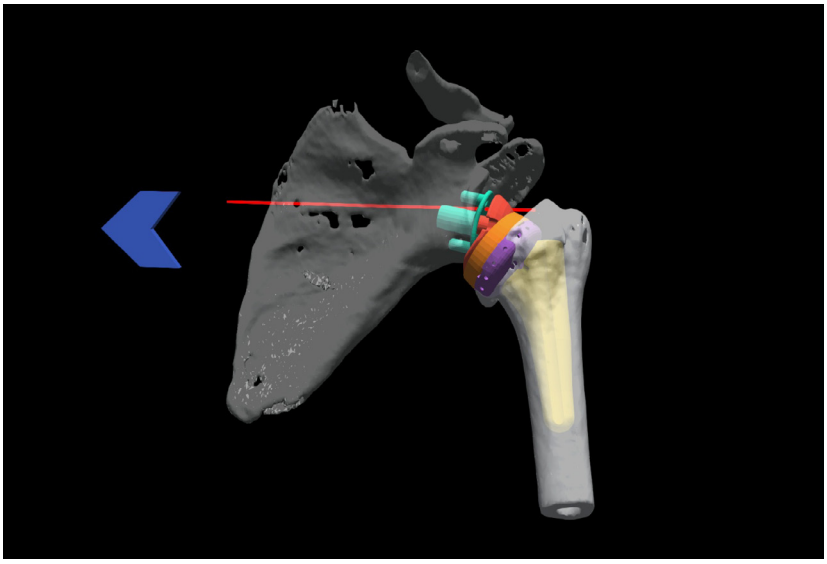
Compatibility

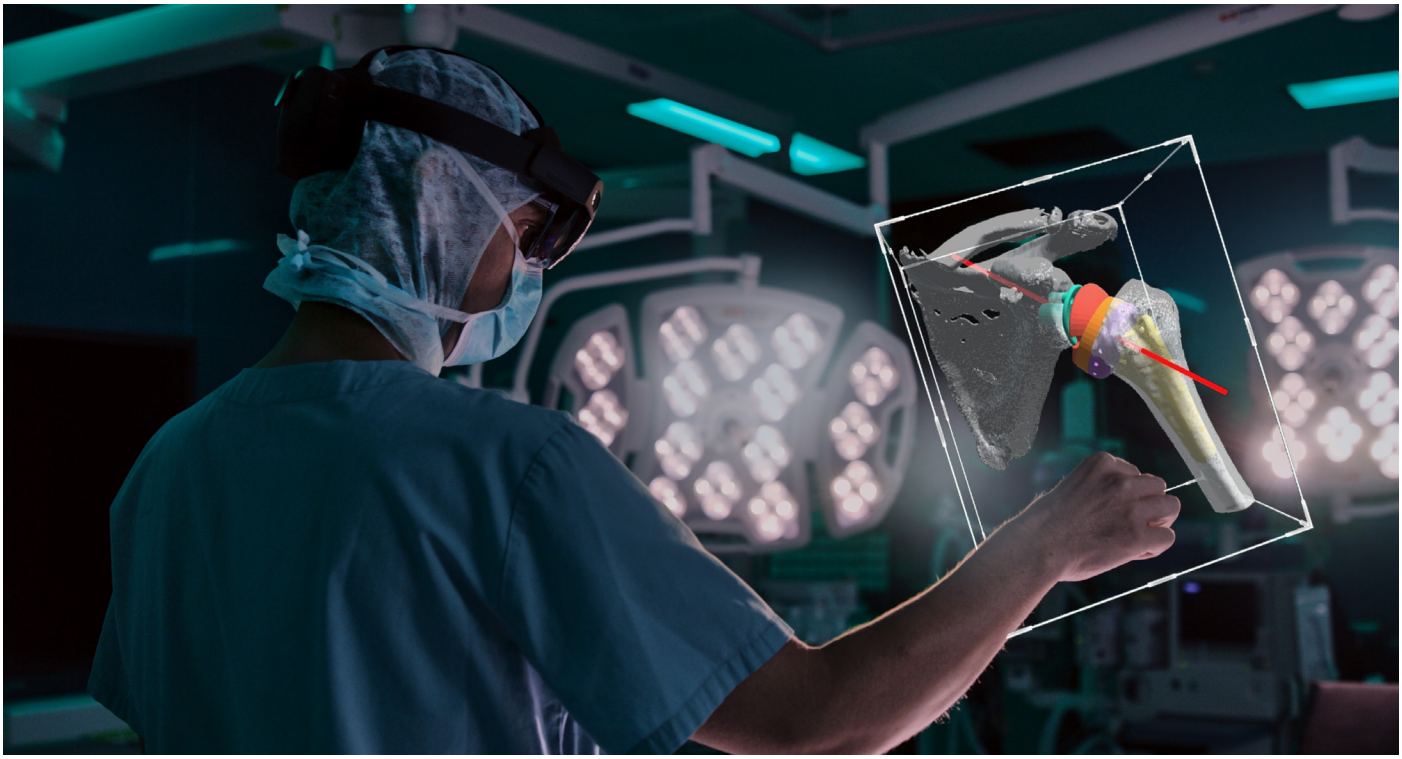
mediCAD® MR communicates with all DICOM® interfaces and is thus compatible with all PAC systems. Many common image formats can be imported as well. The software is compatible with all mediCAD® 3D planning modules, allowing for easy planning transfer and connection to all mediCAD® 3D implant databases.

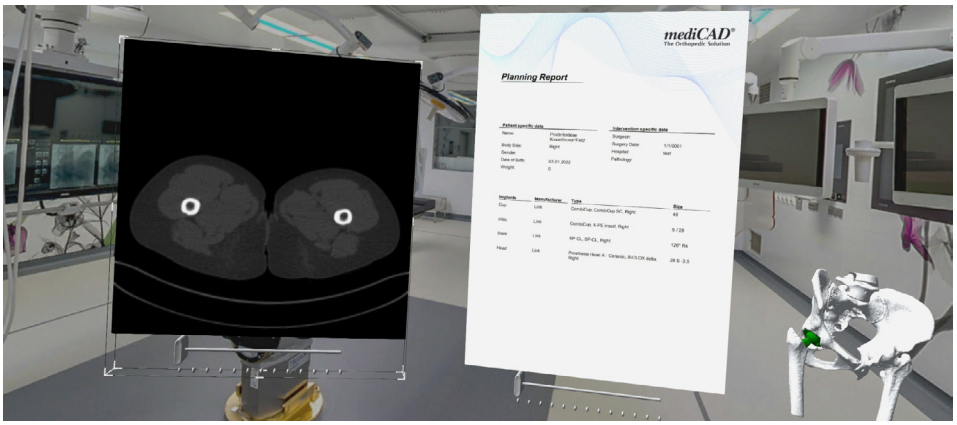
Get a demonstration of the solution. Our sales team is happy to help and answer any further questions.

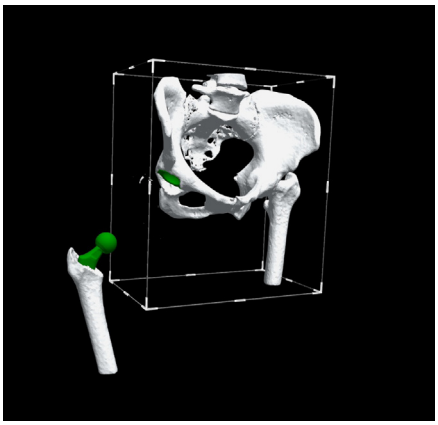

Planning Report
mediCAD
Glenoid measurements (Left)
Version Angle : 8.65°
Inclination Angle : 5.32°
Anterior-Posterior : 38.33mm
Cranial-Caudal : 25.99mm
Humeral measurements (Left)
Thickness :: 0mm
Distance : 4.49mm
Distance : 44.84°
Grab & Move
Bearbeitungs Lock
Segmentieren
Objekt
Zurücksetzen
Teilen
Beenden

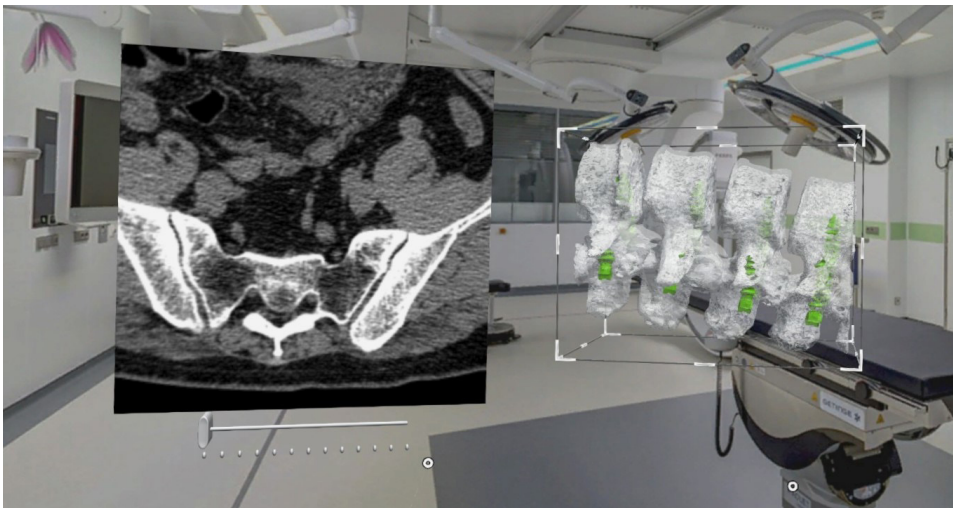


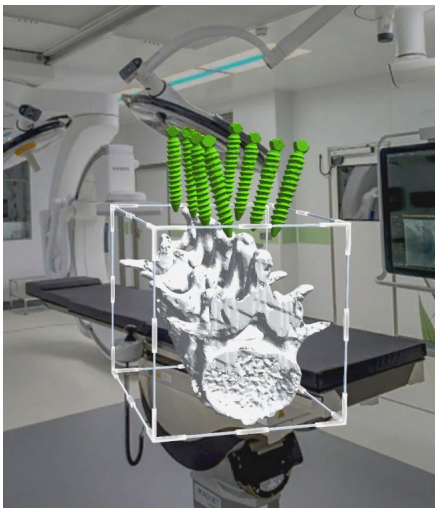


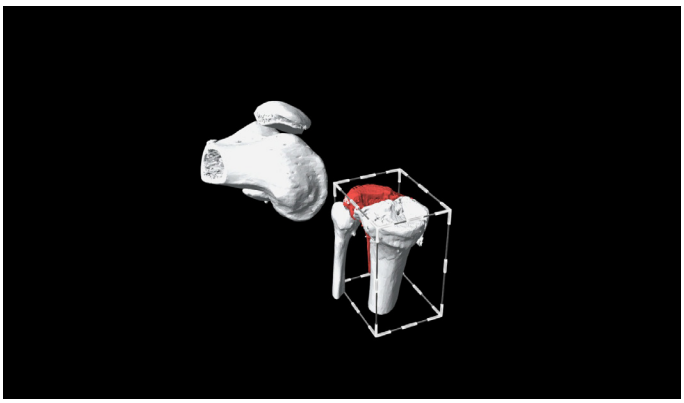


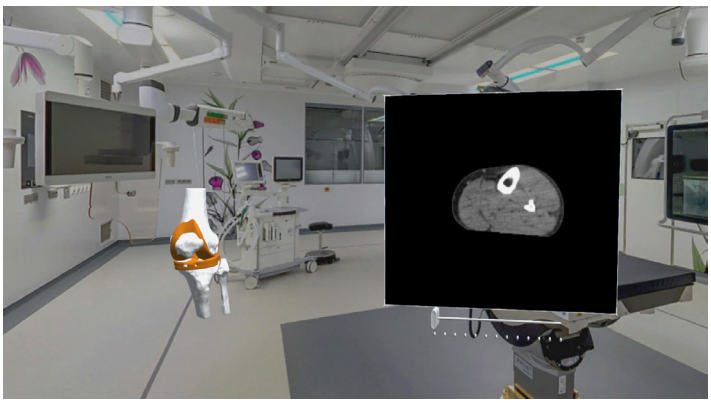

mediCAD
The Orthopedic Solution
Planning Report

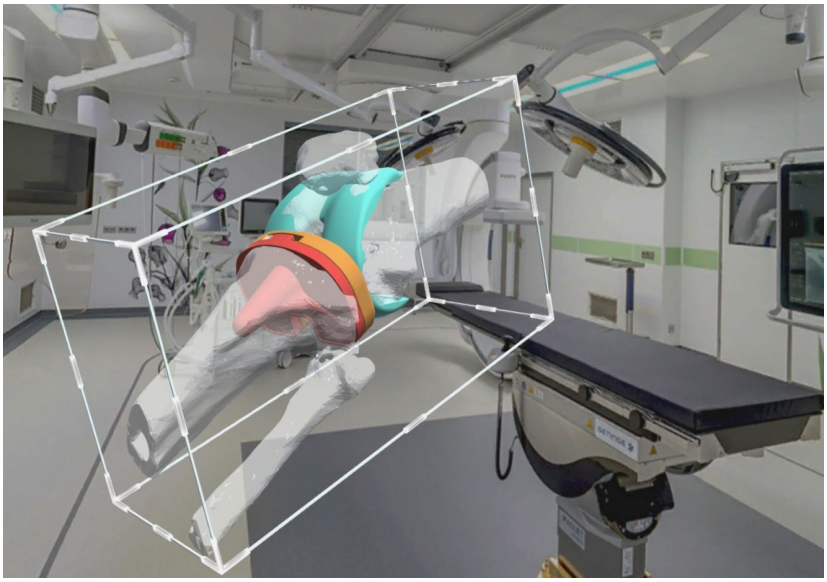












Premium
Solution for Orthopedics

CE

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