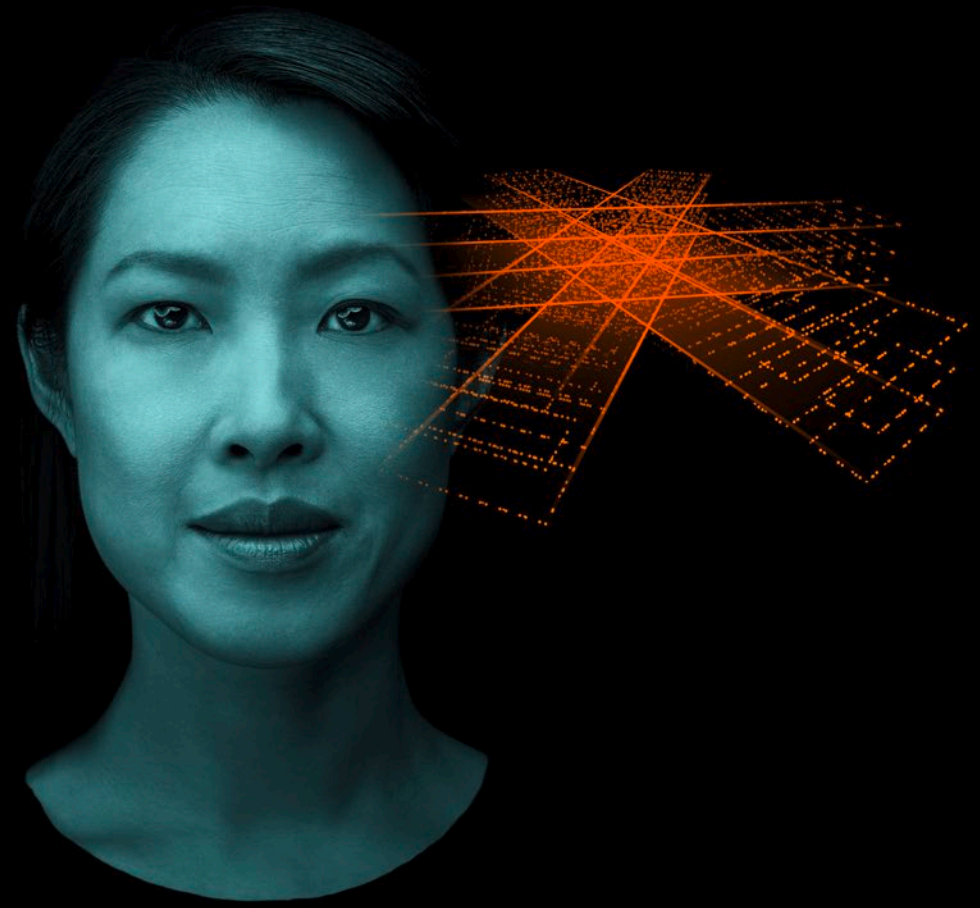
## SOMATOM go.Sim

# Together, creating efficiency

siemens-healthineers.com/radiotherapy/ct-for-rt/somatom-go-sim

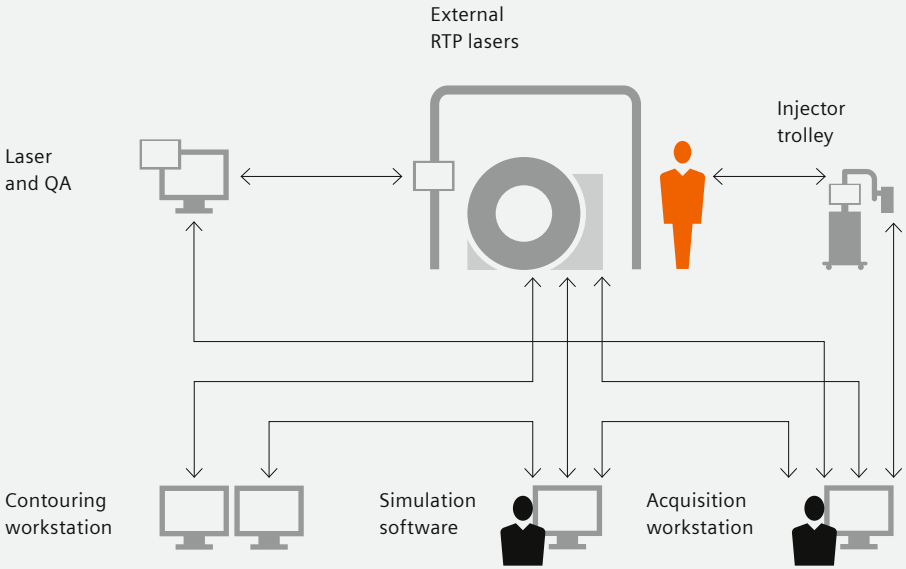



SIEMENS Healthineers

# Staying competitive in a growing market

Today's healthcare providers are under increasing pressure to deliver radiotherapy to more patients than ever before. This demands innovative solutions that will allow you to work more efficiently and lay the foundations for the best possible treatments and better patient outcomes.

## An imperfect workflow




The rise in RT patient numbers will potentially add further pressure to the already complex and challenging RT workflow. Patients go through a multistep process that involves multiple data exchanges. At Siemens Healthineers, treatment preparation is our area of expertise. That's why we want to optimize this part of the process by addressing the lack of integration in existing systems.

## The challenges in CT simulation

**60%** **of RT incidents are caused by manual operation and data exchange[1]**

**1** **Contouring is a major source of variability in RT planning[2]**

**49%** **of patients feel distressed and anxious[3]**

# Together, creating efficiency

Precise CT simulation requires fail-safe, reproducible, and streamlined workflows.

SOMATOM go.Sim is a single, integrated software and hardware solution that covers the entire CT simulation process. It was created for one reason – to minimize errors in a complex workflow so as to potentially reduce time to treatment. Driven by intelligence and automation, SOMATOM go.Sim simplifies your tasks and reduces the likelihood of errors. It helps you to shorten your workflow and save time so that you can focus on what matters most: your patient.

Our understanding of integration extends to every aspect of CT simulation. SOMATOM go.Sim delivers image optimization for target delineation, target margins, and even autocontouring. By integrating the power of AI, this CT simulator also eliminates the problem of variability in your starting point for treatment planning.

Its simple operating concept allows staff to spend more time with their patients. A single vendor service contract relieves the burden on administrators.

SOMATOM go.Sim is a dedicated CT simulator that can optimize clinical operations. Designed and developed considering the needs of the radiation therapy staff – we are together, creating efficiency.

## Imaging, the foundation of radiation therapy

## SOMATOM go.Sim

# Together, creating efficiency

### With streamlined efficiency

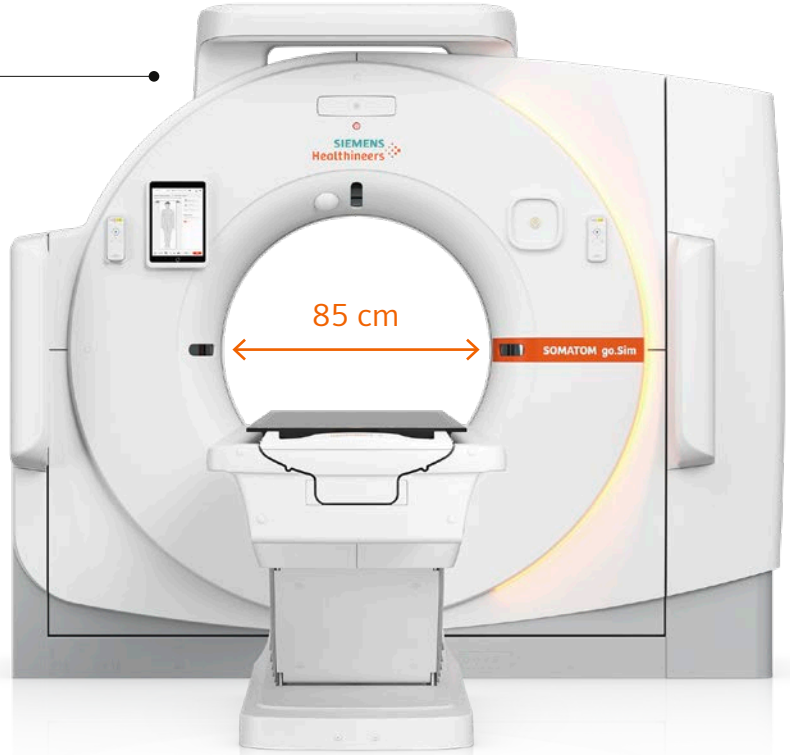
Integrated components are the key to efficient CT simulation. SOMATOM go.Sim aims to give you certainty with a streamlined workflow that is smooth, fast, and able to deliver reproducible and user-independent results. By providing precise contouring through deep learning AI segmentation, SOMATOM go.Sim gives you confidence that you are working from a consistent starting point.

### Leading the patient journey with quality

Because the image quality is crucial for tumor delineation and dose calculation, we've enhanced it further to help you lead the treatment planning path. By reducing metal artifacts and adding specific radiation therapy protocols for dual energy, you can gain visibility thanks to the higher soft tissue contrast.

### With intelligent precision

Reducing pressure on operators gives you time to focus on patients and high-quality results. SOMATOM go.Sim is built on a concept that cares for the needs of both patients and users.




**Key technical data**

| sFOV | Acquired slices / reconstructed slices | Z-axis coverage | Rotation time | Power | Max. table load |
|---|---|---|---|---|---|
| 60 cm | 32 / 64 | 1.92 cm | 0.35, 0.5, 1.0 s | 75 kW | 227 / 307[4] kg (TG-66 compliant tables) |

# Take integration further

**Help to reduce the potential of human errors with automated QA.**

Direct Laser[4] provides an automated laser QA procedure with integrated patient-marking lasers, and removes the need to switch workstations or interfaces.

+ RTP laser

+ Simulation software on tablet and workstation

**Tailor images for precise target contouring.**

Open the door to dose calculation using one calibration curve. DirectDensity[4,5] enables you to personalize kV settings for each patient, eliminating the need for tube voltage-dependent calibration in the TPS.

+ Acquisition workstation

**Enhance tissue contrast and progress in sophisticated radiotherapy procedures.**

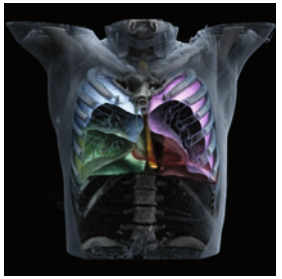
Through Dual Energy[9] acquisition with DirectSPR[4] reconstruction, proton stopping power images are directly accessible. This reduces potential systematic errors associated with HU to stopping power conversion.

AI

+ Contouring station

**Enhance workflow efficiency.**

Simplify the simulation process with an integrated prescription driven workflow[11] that uses myExam Companion for clinical decision support and the automatic selection of scan protocols, and straightforward patient documentation via DirectSetup Notes[4,10], all seamlessly integrated into the Mobile Workflow to reduce complexity.



*Courtesy of Leopoldina Krankenhaus Schweinfurt, Germany*[6]

**Optimize images specifically for consistent OAR contours and fewer side effects after treatment.**

DirectORGANS[4] offers the world's first contours generated by a CT simulator using an optimized reconstruction, and deep learning.

**Other features:**

- **4D CT scanning and Respiratory Motion Management**[4] with FAST 4D provides automated and reproducible results.
- **iMAR**[4] is our proven metal artifact reduction algorithm for improved tumor visualization.
- **TwinSpiral Dual Energy**[4] aims to deliver images with sharp contrast for excellent soft tissue visualization.

Co-creation

## Powered by co-creation

To explore what really matters to you, we spoke to over 300 RT specialists: radiation oncologists, medical physicists, dosimetrists, RTTs, and financial decision-makers. We learned about your biggest challenges and created a CT simulator to address them.

# Work closer to the patient with our trendsetting Mobile Workflow

**Remote control**

Allows easy control of the table movement

**Mobile tablet[7]**

Allows to select patient, setup scan, patient marking and setup documentation

**Direct Laser[4]**

Patient marking integrated into the workflow

**Patient observation camera**

Keep an eye on the patient during the simulation workflow

**Integrated workflow**

Simulation, contouring, laser QA software

**Injector arm[4]**

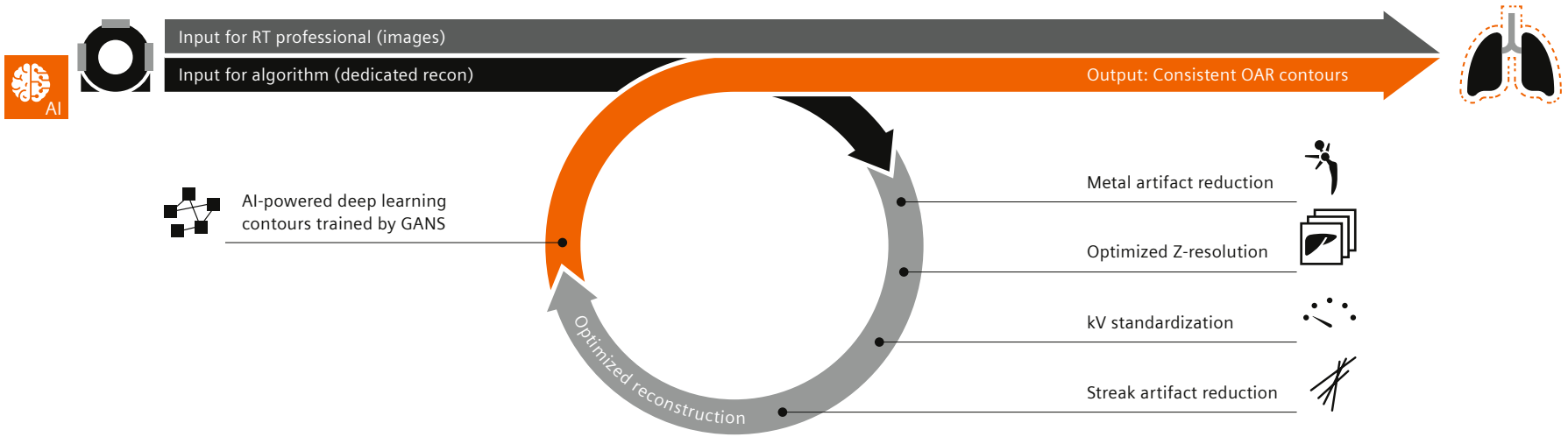
Orderly environment with gantry-mounted injector arm


CT simulation is integral to the treatment planning process, requiring close proximity to the patient and meticulous attention to detail. SOMATOM go.Sim provides integrated support through simple operation via a mobile tablet. This functionality assists in steering laser positioning beams, guiding users through clinical routines, capturing comprehensive patient positioning, and photographing the entire setup. The result is a streamlined process.

**With streamlined efficiency**

- Simplified patient marking using a single system
- Accurate laser positioning with the integrated Direct Laser
- User-friendly interface and guidance throughout the entire simulation process via myExam Companion
- Thorough and integrated reporting of patient positioning with DirectSetup Notes[4, 10]

# DirectORGANS offers precision with the world's first contours generated by a CT simulator




DirectORGANS (Optimized Reconstruction-based Generative Adversarial Networks) is a revolutionary, AI-based organs-at-risk (OAR) contouring solution.

Leveraging optimized reconstruction parameters, it delivers standardized input for the deep learning-based contouring solution to produce consistent OAR contours. This process runs in parallel to the reconstruction of the image for target contouring.

**Experience the world's first contours generated directly at the CT simulator.**

**Drive precision for contouring**

- Perform OAR contouring directly at the system, reducing the need for manual interaction.
- Leverage the power of optimized reconstruction and deep learning to streamline OAR contouring.
- Benefit from AI contouring enhanced by advanced imaging capabilities, coupled with Dual Energy[9].
- Multi guidelines support allows to choose the preferred international guidelines

**Clinical study from Unviersitäts-klinikum Erlangen, Germany[8]**

| Average rating of contours[8] | Average contouring time per patient in min[8] |
|---|---|
| **90%** clinically usable contours | **Ø11.4** min time saving per case |

- Clinical evaluation of 50 datasets for 5 sites with 10 cases each
- 2140 OARs evaluated

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[1] *Greenwalt J et al. Reducing errors in radiation therapy through electronic safety checklists. Applied Radiation Oncology. 2014: 5–9*

[2] *Jameson MG et al. A review of methods of analysis in contouring studies for radiation oncology. J Med Imaging Radiation Oncol. 2010; 54(5): 401–10*

[3] *Kelly E et al. Reduced patient anxiety as a result of radiation therapist-led psychosocial support: a systematic review. J Med Radiat Sci Sep; 64(3): 220–231*

[4] *Optional*

[5] *As shown by measurements with a Gammex 467 Tissue Characterization Phantom comparing standard reconstruction and DirectDensity reconstruction. Image value to relative electron/mass density conversion for the standard reconstruction was based on a two-linear-equations approach with individual calibration for each tube voltage.*
*For DirectDensity images, a single tube-voltage-independent linear conversion was used. DirectDensity reconstruction is designed for use in Radiation Therapy planning (RTP) only. DirectDensity reconstruction is not intended to be used for diagnostic imaging.*

[6] *Volume-rendered image is for illustration purposes only and not part of DirectORGANS.*

[7] *Option of up to three additional tablets.*

[8] *Study results from Universitätsklinikum Erlangen, Germany, using DirectORGANS VA40 and syngo.via RT Image Suite Organs RT VB50. Software version syngo.via RT Image Suite Organs RT VB50 is equivalent to DirectORGANS on SOMATOM go.Sim and SOMATOM go.Open Pro syngo CT VA40. Published in White paper DirectORGANS 2.0, Siemens Healthineers, 2021.*

[9] *Only available in combination with DirectORGANS.*

[10] *DirectSetup Notes is intended for digitalizing patient setup documentation to ease the RT workflow. The operation and the configuration of the feature must be conducted by trained healthcare professionals.*

[11] *Requires: syngo CT VB20, ARIA 18.1 MR2 or higher, FHIR4ARIA 4.6 or higher and Oncology Exchange*

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