GE Healthcare

Advantage 4D

Efficient and accurate visualization and assessment of respiratory induced motion with fast 4D image reconstruction.

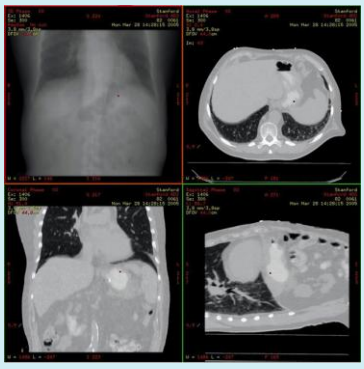
Patient motion and organ distortion, whether the result of voluntary patient movement or natural functions such as respiration, can make radiotherapy planning assessment less precise. Accurate targeting is essential for sparing healthy tissue while delivering optimal therapy to the target tumor.

Overview

Advantage 4D is a retrospective gating CT application that analyzes and characterizes respiration-induced motion of the anatomy. It provides information on the true shape of the anatomical objects in motion, reduces structural distortion, and identifies the dynamic range of motion to help make radiotherapy planning assessment more precise. Advantage 4D helps you determine extent and direction of the motion and aids the decision whether to employ standard or gated therapy.

What's new

- Displays complete 4D volumes in sagittal, coronal, and axial planes for quick respiratory motion evaluation.
- Auto4D offers a fast, efficient automated 4D workflow including binning, and intensity image creation (MIP, Ave-IP, Min-IP).
- Advantage 4D is protocol driven and fully automated. You spend less time choosing appropriate phases or building 4D movie loops



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Features

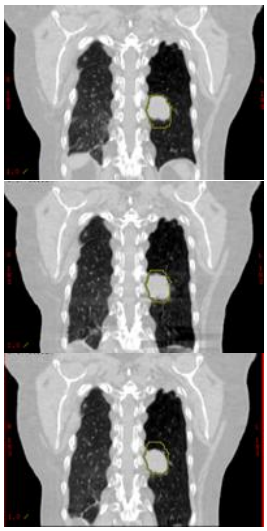
- Automatically sorts 4D image data by respiratory phase into multiple bins.
- Display offers movie-looped views of the anatomy in motion so you can determine the best phase range in which to treat the patient.
- 3D or 4D-based image display and manipulation provides image acquisition resolution up to 512x512 matrix.
- Program examines motion profile generated by vendor device.
- Generates multiple phase series for 2D, 3D, and 4D viewing.
- Creates MIP, Ave-IP and Min-IP series that you can use for more efficient planning of standard or gated therapy delivery.

Image display

- Three windows display transverse, coronal, sagittal, oblique, and 4D images, which can be magnified within the display window or to full-screen size. All images are labeled with patient ID.

Motion assessment and correction

- Advantage 4D improves clinical images by reducing organ and tissue motion due to respiration during CT acquisitions. The software lets you retrospectively define the highest quality images within a respiratory range, then automatically groups images by the phase(s) selected.



Cine scanning mode

The respiratory gating option uses multiple rotations at one table position. The table advances to the next scan position and scanning resumes. Scan duration at each position should be at least as long as the respiratory cycle plus one rotation. You determine the number of table positions based on the anatomy to be covered.

System Requirements

- AW Workstation 4.6 or AW Server 2

Compatibility

GE CT scanners:

- Discovery CT590RT
- Optima CT580 Series
- Discovery CT750 HD
- Optima CT660
- LightSpeed Series
- LightSpeed VCT Series
- BrightSpeed Series

GE PET/CT scanners:

- Discovery PET/CT 600
- Discovery PET/CT 690
- Discovery ST
- Discovery STE
- Discovery VCT

Other GE scanners may be supported as well. Please ask your GE sales representative.

Intended Use

Advantage 4D is a non-invasive software / hardware option that can be used to provide and display CT images of all phases of a breathing cycle for the evaluation of respiration-induced motion. The software will allow the user to retrospectively define the best respiratory phase from an image quality standpoint, and group images by the phase selected.

Regulatory Compliance

Complies with the European CE Marking directive for Medical Devices 93/42/EEC.

GE imagination at work

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