

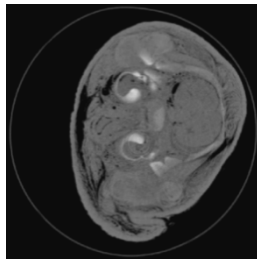
What is Computed Tomography Scanning?

Computed tomography (CT) scanning is an X-ray–based, non-destructive technology. Just like the more common digital radiography (DR) technology, such as X-rays, CT scanning allows the visualization of features in scanned objects without damaging them, i.e., non-destructive testing.

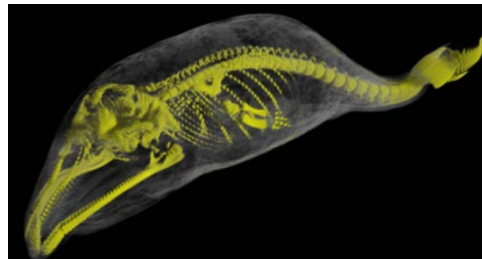
Computed tomography versus digital radiography

CT refers to a computerized X-ray imaging procedure. It consists of a narrow beam of X-rays aimed at an object that quickly rotates around it, producing signals that are processed by the machine’s computer to generate cross-sectional images—or “slices”—of the object.

A single, 2D CT image slice does not show all of the features in a 3D object; it visualizes only the features in the given cross-sectional layer at the selected scanning position. The CT image is basically a density map of the scanned cross section. To create a 3D model of an object, a series of CT images can be collected and assembled. Increasing the number of cross-sections increases the 3D image quality in the third dimension.



2D CT image (cross-section) from a whale



3D model of whale

A DR image shows the entire object, i.e., the entire 3D volume. This is an advantage of DR technology. However, the information about the location and the size of the features in the image is less accurate.



For example, in this X-ray image, the position of the eyeballs in the third dimension is unknown. In other words, this image does not provide information about the patient’s position (looking toward or away from you). The information about the size of the eyeball, compared to the skull size, is also inaccurate. The eyeball would appear larger if the patient was facing the X-ray source.

At FPIinnovations, we can offer you non-destructive testing services with both CT and DR technologies, depending on your specific requirements.