



Improved CT Image Reconstruction Method for Use with 1-D Detector Arrays

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an improved algorithm for reconstructing CT images.

Overview

The introduction of 2-D detector arrays significantly improved the diagnostic potential of computed tomography (CT). However, accurate and efficient image construction from the data provided by these detectors has been challenging.

The Invention

A UW-Madison researcher has developed an improved algorithm for reconstructing CT images from scans performed with a fan beam source and a 1-D detector array. A major advantage of this algorithm is that, unlike those employed by most commercially available CT systems, images can be accurately reconstructed by using fan beam data acquired from a scanning path with angular coverage less than the standard 180+ fan angle. This feature improves the temporal resolution of fan beam CT cardiac imaging. The algorithm contains a filtered back projection (FBP) structure that allows the use of fast Fourier transform (FFT) to accelerate the image reconstruction process. It also acquires the data needed to image a region of interest with shorter scan paths than are required by previous algorithms involving FBP, potentially lowering the X-ray dosage associated with CT scanning.

Applications

- CT image reconstruction

Key Benefits

- Better suited to 2-D CT image reconstruction than previous techniques
- By reducing scan times, promises to lessen patient exposure to X-ray radiation, a feature that is particularly advantageous in pediatric imaging and cardiac imaging
- Allows the use of parallel processing to speed the image reconstruction process

Additional Information

For More Information About the Inventors

- [Guang-Hong Chen](#)

Tech Fields

- [Medical Imaging : CT](#)

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