Parallel Magnetic Resonance Imaging Method Using a Radial Acquisition Trajectory

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a post-processing algorithm that quickly compiles a high-quality composite of radial trajectory magnetic resonance images.

Overview

In magnetic resonance systems, individual phased-array coils each sense a signal from a different part of the body. A composite image is then formed using an algorithm. Although parallel imaging can be incorporated to reduce data acquisition time, the two leading methodologies are slow or inaccurate when used to describe spiral or radial acquisitions of MRIs.

The Invention

UW-Madison researchers have developed a post-processing algorithm that quickly compiles a high-quality composite of radial trajectory magnetic resonance images. In radial acquisition of an MRI, data points are more frequent in the central region. In the outer region, data is undersampled and must be estimated on the basis of training data from a preliminary scan. This algorithm generates training data based on the densely sampled central region rather than a preliminary scan.

Applications

- Real-time and contrast-enhanced MR studies

Key Benefits

- Uses a series of synthesized training images rather than one preliminary scan
- Accurately reflects changes due to contrast enhancement
- High image quality
- Short reconstruction time
- Requires no acquisition of training data
- Reduces trade-off between spatial and temporal resolution
- Increases patient throughput
- Improves patient comfort
- Improves image quality
- Self-calibrated

Additional Information

- Walter Block

Tech Fields

- Medical Imaging : MRI

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846