Compressed Sensing Coronary MRI Sequence

Higher Acceleration Rates than Parallel Imaging

A novel MRI (Magnetic Resonance Imaging) imaging sequence and reconstruction method uses a randomly undersampled acquisition of a 3D k-space to allow a compressed sensing accelerated coronary MRI sequence. Compressed sensing allows for acceleration rates higher than parallel imaging.

Coronary MRI still faces major challenges, including lengthy acquisition time, low signal-to-noise-ratio (SNR), and suboptimal spatial resolution. Higher spatial resolution in the sub-millimeter (sub-mm) range is desirable, but this results in increased acquisition time and lower SNR, hindering its clinical implementation.

Phase of Development

• Prototype developed. Demonstrated across multiple in vivo studies.

Features

- Compressed sensing accelerated coronary MRI sequence
- Randomly undersampled acquisition of a 3D k-space
- Higher acceleration rates than parallel imaging
- Improved signal-to-noise ratio

Applications

- Conventional MRI scanners
- Magnetic resonance imaging (MRI)

Researchers

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Publications

Accelerated isotropic sub millimeter whole heart coronary MRI: Compressed sensing versus parallel imaging

Magn Reson Med., 2014 Feb; 71(2): 815-822

<u>Accelerated coronary mri using compressed sensing with transform domain dependencies: a</u> feasibility study

Journal of Cardiovascular Magnetic Resonance, 2010 12 (Suppl 1):P36

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