



Correcting for Patient Motion with T1-Weighted PROPELLER MRI

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a parallel imaging technique that enables clearer scans while maintaining the requirements for T1 tissue contrasting.

Overview

A leading method for reducing motion blurring in medical imaging is called PROPELLER (Periodically Rotated Overlapping Parallel Lines with Enhanced Reconstruction). It allows doctors to track and help correct for the movement of a patient during magnetic resonance imaging (MRI) scans. This technology can make clearer images with faster scanning and result times. It is especially useful for patients who move, like children and those with conditions such as Parkinson's disease.

However, acquiring motion-corrected parallel images is challenging with T1-weighted FLAIR, a lesion-detecting MRI technique that removes the effects of fluid from images. This is because its short pulse sequence, or echo train length (ETL), limits the width of the blades that can be used with PROPELLER. Reconciling these issues is vital.

The Invention

Researchers have developed a technique that enables motion-corrected images to be acquired with T1 FLAIR contrast by combining PROPELLER and parallel imaging with calibration data shared between blades.

Using data from a shared external calibration blade reduces the number of internal calibration lines needed and enables higher acceleration for each blade. Maintaining short ETL readouts, the high parallel imaging acceleration increases the effective blade width significantly to allow for motion correction.

Applications

- Software package for PROPELLER

Key Benefits

- Combines motion correction with T1 FLAIR contrasting
- Supports more accurate MRI images
- Improves scans of moving or shaking patients, including children
- Allows for effective blade width increase to 27

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The method was validated using volunteers instructed to move their heads during imaging.



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Additional Information

For More Information About the Inventors

- [Howard Rowley](#).

Publications

- Holmes et al. 2012. Improved Motion Correction Capabilities for Fast Spin Echo T(1) FLAIR Propeller Using Non-Cartesian External Calibration Data Driven Parallel Imaging. Magn Reson Med.

Tech Fields

- [Medical Imaging : MRI](#)

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

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