Confidence Maps for MRI Parametric Mapping

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WARF: P120292US01

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method for identifying and avoiding sources of error in parametric maps.

Overview

Magnetic resonance parametric mapping is a general framework for measuring important biomarkers. In the process, several images from the same field of view are obtained using different acquisition parameters (echo time, repetition time, encoding gradients, etc.). These different parameters help produce images in which contrast varies in a controlled way. For example, in chemical-shift encoded imaging, several images are acquired with different echo times, giving rise to different relative phases between chemical species. The map of a desired parameter is produced from the image series.

However, the process can be degraded by image artifacts and noise, which introduce systematic errors in certain areas of the parametric maps. Identifying these unreliable regions would enable cleaner maps.

The Invention

UW–Madison researchers have developed a method for reducing parametric mapping errors using 'confidence maps' that identify problematic areas.

In this approach, an MRI system acquires k-space data from a field of view and reconstructs an image series. The k-space data also is used to compute a confidence map depicting regions in the field of view affected by error sources. A parametric map is produced using the MRI image series but checked against the confidence map. Error-prone areas are avoided, removed or flagged so as not to contaminate the parametric map.

Applications

- Image reconstruction for MRI used to measure fat fraction or other phase base imaging

Key Benefits

- Improved parametric mapping
- Overcomes systematic error and bias

Additional Information

For More Information About the Inventors

- Scott Reeder
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Related Technologies

- For more information about MRI and error-compensated chemical species signal separation, see WARF reference number P110134US01.

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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