



Ultra-High Frame Rate, Time-Resolved, 4-D MRA

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WARF: P110289US01

Inventors: Charles Mistretta

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a system and method for producing time-resolved, 3-D angiographic images.

Overview

Since the introduction of angiography, there have been many attempts to develop techniques that provide diagnostic images of the vasculature while reducing invasiveness.

A technique called 4-D DSA (digital subtraction angiography) has been developed for generating detailed series of time-resolved, 3-D medical images of a subject with both high temporal resolution and excellent spatial resolution. This is done by imparting temporal information from a time series of 2-D images onto a still 3-D image.

However, acquiring both the 2-D and 3-D data sets may require multiple imaging subsystems, such as fluoroscopy and computed tomography (CT), which require the use of ionizing radiation. A new approach must be less expensive and complex, and avoid ionizing radiation.

The Invention

A UW-Madison researcher has developed a system and method for producing time-resolved 3-D medical images of a subject from a time series of 2-D data sets and a time-independent 3-D volume of the subject.

The 2-D time series of images is obtained using MRI, and then combined with the time-independent 3-D volume to generate a set of time-dependent 3-D volume images of the subject at the frame rate of the acquired 2-D data sets. The system is able to reconstruct multiple sets of 2-D time series of images at different view angles. Reconstruction can be done using HYPR, a processing technique previously developed by the researcher.

Applications

- Diagnostic magnetic resonance angiography (MRA)

Key Benefits

- Generates high-quality 3-D image volumes at high frame rates and without ionizing radiation

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For More Information About the Invention

- [Charles Mistretta](#)

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Related Technologies

- [For more information about highly constrained image reconstruction with the HYPR processing technique and magnetic angiography, see WARF reference number P06088US.](#)

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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