UNIVERSITY OF MINNESOTA
Driven to Discover℠

Alternative slice ordering for improved MRI perfusion imaging

A novel method for the alternative ordering of slices in multi-band echo planar imaging arterial spin labeling (MB-EPI ASL) imaging for improved image quality.

IP Status: US Patent Issued; Patent No. 11,965,950

Applications

- Reduction in artifacts that occur at high acceleration rates with simultaneous multi-slice or multiband techniques
- Increased robustness to subject motion during acquisition
- Improved perfusion imaging in the brain and other organs
- Suppression of banding artifacts

Technology Overview

Use of simultaneous multi-slice (SMS) or multiband (MB) acceleration techniques for high-resolution arterial spin labeling (ASL) is a perfusion imaging technique that can provide quantitative measurements of cerebral blood flow as a surrogate marker of brain metabolism and function. Standard acceleration methods can result in significant errors and banding artifacts in images when there is patient movement, which can decrease clinical utility. Researchers at the University of Minnesota have developed novel alternative slice acquisition order schemes for highly accelerated echo planar imaging arterial spin labeling (MB-EPI ASL) imaging. These new methods change the order in which different slices of the brain are scanned, reducing artifacts and making the images clearer and more accurate. This new scanning order can be applied to other organs and different types of MRI scans, making it broadly useful.

Phase of Development

TRL: 4-5
Validated on a clinical Siemens 3T Prisma MRI Scanner.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- Xiufeng Li, PhD Assistant Professor, Department of Radiology
- Greg Metzger, PhD Associate Professor, Department of Radiology
- Essa Yacoub, PhD Professor, Department of Radiology
- Kamil Ugurbil, PhD Professor, Department of Radiology

Technology ID
2019-148

Category
Engineering & Physical Sciences/MRI & Spectroscopy
Life Sciences/Diagnostics & Imaging
Life Sciences/MRI & Spectroscopy
Life Sciences/Neuroscience

View online page