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# Motion robust magnetic resonance imaging (MOTOR-MRI)

### A method for suppressing motion artifacts in anatomical magnetic resonance imaging

**IP Status:** US Patent Issued; Patent App. No. US 2023/0136320 A1

### Applications

- MR imaging of patients with Parkinson's
- MR imaging of small children
- MR imaging of patients with motor dysfunctions

### Technology Overview

Magnetic resonance imaging scans are highly susceptible to subject motion, especially when imaging small children or subjects with motor dysfunctions such as Parkinson's disease. Researchers at the University of Minnesota have developed a for suppressing motion artifacts in anatomical magnetic resonance acquisitions. The technique, MOTOR-MRI, can recover and salvage images that are otherwise heavily corrupted by motion-induced artifacts and blur, rendering them unusable. Contrary to other techniques, MOTOR-MRI operates on the reconstructed images and not on k-space data. It breaks the standard acquisition protocol into several shorter ones and subsequent efficient aggregation in Fourier space of locally sharp and consistent information among them, producing a sharp and motion-mitigated image. MOTOR-MRI can operate independently, or in conjunction with additional motion correction methods. This decreases the overall scan time, which is associated with decreased insurance costs, and decreased overall subject discomfort.

### Phase of Development

**TRL: 4-5**
Implemented on 3T scanner

### Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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### Researchers


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### Technology ID

2022-016

### Category

All Technologies
Engineering & Physical Sciences/MRI & Spectroscopy
Life Sciences/Diagnostics & Imaging
Life Sciences/Human Health
Life Sciences/MRI & Spectroscopy
Software & IT/Algorithms
Software & IT/Image & Signal Processing

### Learn more

## References

1. Oren Solomon, Rémi Patriat, Henry Braun, Tara E. Palnitkar, Steen Moeller, Edward J. Auerbach, Kamil Ugurbil, Guillermo Sapiro, Noam Harel(2023) , https://www.sciencedirect.com/science/article/abs/pii/S1361841522002663, Medical Image Analysis, 83, 102638