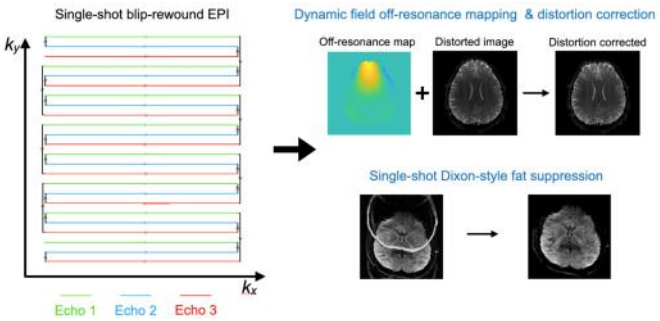
PROJECT NUMBER

21474

Dynamic distortion correction for improved EPI image quality in MRI

A novel MRI method dynamically correcting distortions in echo-planar imaging, addressing motion and field artifacts for high-quality, distortion-free images.

Applications: Magnetic Resonance Imaging (MRI)



Features	Benefits
Simultaneously generate MRI magnitude images and off-resonance (field inhomogeneity) maps	Corrects off-resonance induced artefacts in EPI images, such as distortion and fat rings
Dynamic off-resonance mapping at high temporal rate	No field map acquisition required, reducing scan time
Single-shot multi-echo acquisition enabling Dixon-style water-fat separation	Corrects dynamic distortion changes caused by motion, respiration and scanner drift, enhancing image quality and precision
Highly robust to motion with single-shot acquisition	Highly robust against main magnetic field and transmit field inhomogeneity
Versatility Across Modalities	Reduced energy deposition and shorter scan time by eliminating the fat suppression pulse

Features	Benefits
Joint Multi-Echo image reconstruction	Maintains stability against physiological fluctuations with single-shot readout
	Ensures reliable imaging even for subjects with significant motion and moving organs
	Applicable to any MRI modalities using an EPI readout, such as diffusion MRI, functional MRI and perfusion MRI
	Ensure comparable data quality as conventional EPI, while providing additional off-resonance information

Available for

- Co-development
- Consulting
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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