

DATA SHEET: **skope™-i**

Diffusion Imaging

fMRI

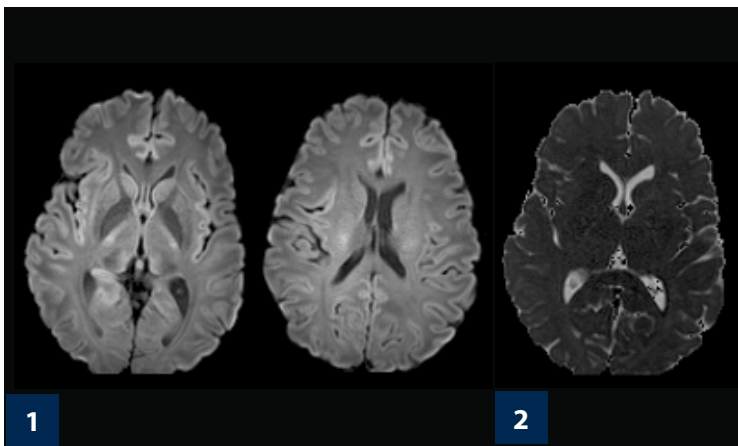
Ultra-High-Field Imaging

skope-i IMAGE RECONSTRUCTION SOFTWARE

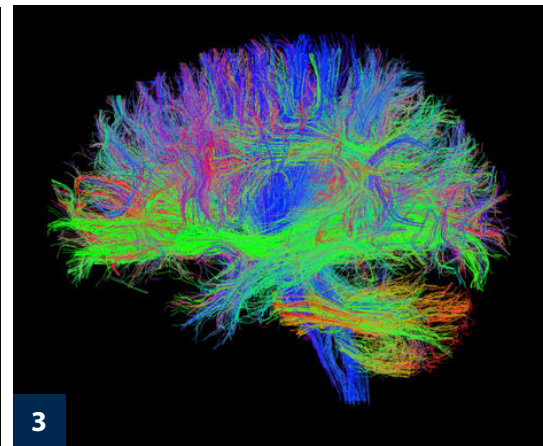
Your Partner in Scientific MR Imaging

Robust image reconstruction to move your neuroscience and sequence development forward

- ▶ Reconstruct images based on measured field trajectories
- ▶ Utilize advanced reconstructions in your current imaging workflow
- ▶ Accelerate robust, plug-and-play software with the power of GPUs



Diffusion images acquired using the NeuroCam™ and reconstructed using skope-i



Enable advanced imaging methods with minimal effort using skope-i. Streamlines processed in Olea Sphere®

1 Reconstruct images based on measured field trajectories

skope-i provides a versatile framework to reconstruct MR images based on measured encoding dynamics. K-space trajectories measured by field cameras and the raw data from the MR scanner are used by a rigorous algebraic image reconstruction algorithm. Field perturbations, as well as B0 and coil sensitivity information are used during image reconstruction to produce reliable and reproducible MR images.

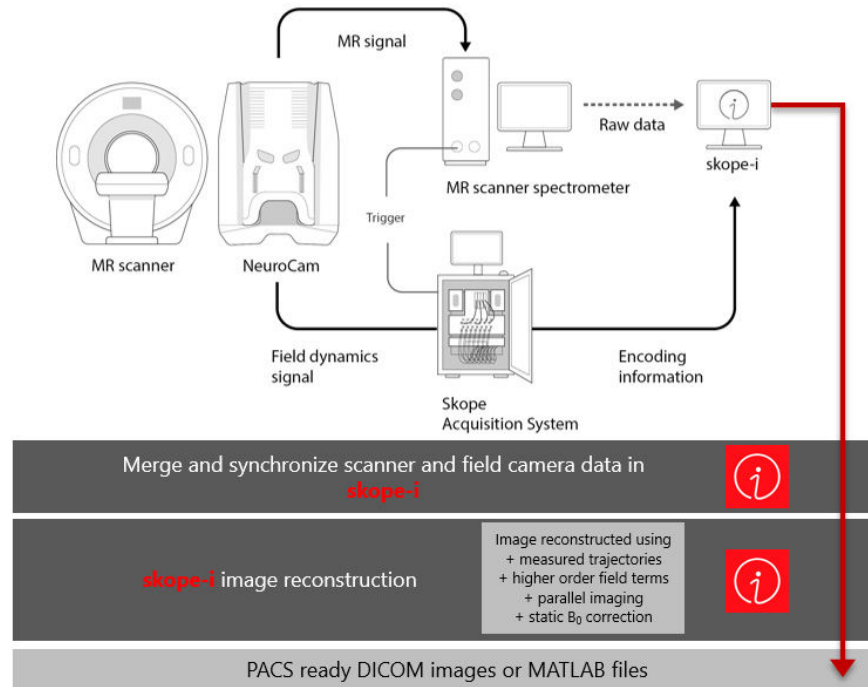
2 Utilize advanced reconstructions in your current imaging workflow

Advanced reconstruction software can be difficult and time-consuming to integrate into imaging and study workflows. skope-i provides the means to convert measured MR data into high quality images with minimal effort. The usage of standard input (MRD) and output (DICOM) formats facilitates the sharing of data and the integration of the software into existing data processing pipelines.

3 Accelerate robust, plug-and-play software with the power of GPUs

Iterative image reconstruction methods are challenging and extremely time-consuming to implement and run. skope-i uses published standard reconstructions (SENSE, static ΔB_0 , and expanded encoding model corrections) to generate images with the accelerated using the latest GPU-enabled algorithms. Reconstructing field monitored images using skope-i saves time and allows you to focus on developing your research.

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Available Options

GPU acceleration
Accelerate your image reconstruction by using one or multiple GPUs.

SMS reconstruction
Speed up your diffusion using multi-band imaging.

Multi-shot diffusion
Leverage the SNR gains of multi-shot diffusion imaging with skope-i to improve your diffusion imaging.

Multi-core processing
Make full use of the available computational power and run your image reconstruction on multiple cores.

SENSE reconstruction
Use acceleration to speed up your image acquisition and reconstruct the data based on the generalized SENSE algorithm.

Compatible with MATLAB and Python
Use the provided reconstruction algorithms or use the APIs to create a custom reconstruction. Examples are provided to get you started.

B₀ correction
Correct off-resonance image artefacts based on static B₀ field information.

Vendor independent input and output formats
Easily use and share your merged camera and scanner data stored in the open-source ISMRMRD format. Store your reconstructed images and maps as either DICOM, PNG, or MATLAB files.

Arbitrary k-space trajectories
Reconstruct image data irrespective of the used k-space trajectory thanks to a generalised SENSE implementation.

skope-i can be implemented in your reconstruction and analysis pipelines in as few as four lines!

```

ConvertScannerData(scannerFolder, scannerIdGre, mrdFolder, Stylesheet);
CalcDelayAndMerge(mrdFolder, scannerId, cameraFolder, cameraId, mergeFolder);
reconDef = GetReconDef(mergeFolder, scannerIdGre, cameraIdGre, reconFolder);
Reconstruct(reconDef);
    
```

- ← Convert data to ISMRMRD
- ← Align scanner and camera data
- ← Setup the reconstruction
- ← Reconstruct!

