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Screen 03 - Synergistic Image Reconstruction Framework: version 3.2

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The Synergistic Image Reconstruction Framework (SIRF) is a research tool for reconstructing data from multiple imaging modalities, currently most prominently PET and MR. Included are acquisition models, reconstruction algorithms, registration tools, and regularisation models. In this work, we briefly list current capabilities and demonstrate the main new feature added since SIRF 3.1: acquisition models for non-Cartesian MR sequences.

The new reconstruction capabilities were tested on three 2D MR datasets that were acquired on a Siemens 3T scanner using the open-source MR pulse design framework pulseq. Data were acquired with a cartesian, golden-angle radial and spiral trajectory and reconstructed using the acquisition models SIRF.

The presented work shows that SIRF was able to reconstruct the acquired data using both a pseudo-inverse as well as an iterative reconstruction algorithm independent of the employed sampling pattern.

The new functionality makes SIRF more flexible with respect to MR input data as well extends its potential user base.

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