

An Alternative Approach to Parallel MRI

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Abstract

Magnetic Resonance Imaging with parallel data acquisition requires algorithms for reconstructing the patient's image from a small number of measured k-space (Fourier space) lines.

Well-known algorithms like SENSE and GRAPPA and its flavors require a very good a priori knowledge of the receiver sensitivity information. In contrast to that we consider the problem as a non-linear inverse problem where we compute the image and the receiver sensitivities simultaneously and hence can cope with rough estimations of the receivers.

Fast computation algorithms for the necessary Frechet derivative and reconstruction algorithms are given. We will present corresponding reconstructions from real data.