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A fast method for L1-L2 modeling for MR image compressive sensing.

Summary: We use a positive parameter to develop a differentiable perturbed reconstruction model to solve the L1-L2 magnetic resonance image (MRI) reconstruction problem. We use Bregman iterative formulation to solve the differentiable perturbed L1-L2 model, and lagged diffusivity fixed-point iteration to solve the minimization problem in the Bregman iteration. Two Fourier transforms and an inverse Fourier transform are used to accelerate L1-L2 MRI reconstruction. Real MR images are used to test the method in numerical experiments. The results demonstrate that the proposed method is very efficient for L1-L2 MRI reconstruction.

Keywords: compressive sensing; sparse transform; lagged diffusivity fixed-point iteration; Bregman iterative regularization; inverse problem; magnetic resonance image reconstruction; Fourier transform; numerical experiment
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