عنوان مقاله:

A four directions variational method for solving image processing problems

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خلاصه مقاله:

In this paper, based on a discrete total variation model, a modified discretization of total variation (TV) is introduced for image processing problems. Two optimization problems corresponding to compressed sensing magnetic resonance imaging (MRI) data reconstruction problem and image denoising are proposed. In the proposed method, instead of applying isotropic TV whose gradient field is a two directions vector, a four directions discretization with some modification is applied for the inverse problems. A dual formulation for the proposed TV is explained and an efficient primal dual algorithm is employed to solve the problem. Some important image test problems in MRI and image denoising problems are considered in the numerical experiments. We compare our model with the state of the art methods.

کلمات کلیدی:

Total variation, Magnetic resonance imaging, Primal-dual optimization method, Regularization, Image denoising

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