

Abstract

A generalized tree sparse-based weighted nuclear norm magnetic resonance imaging reconstruction method: firstly, acquiring a magnetic resonance imaging sampling data sample to carry out a Fourier transform; and constructing a tree-structured sparse signal according to the sampling data, and approximating a sparse expression of a constrained target function using a weighted nuclear norm; optimizing the constrained target function by means of the Augmented Lagrangian method and performing an iterative update on said test data by means of an alternating direction search method until estimated restoration data is obtained; and acquiring a final restoration image by means of constructing a tree sparse inverse transform. Using an internal structural relationship of a fully mined image signal, the structural properties of a generalized tree sparse of an image block are combined with a weighted nuclear norm, and a calculation process is simplified using an alternating direction method of multipliers (ADMM) algorithm, thereby decreasing algorithm complexity, improving the performance of partial spatial data image reconstruction, leading to more accurate image reconstruction due to a smaller scanning measurement, and reducing artifacts of image reconstruction while achieving rapid magnetic resonance imaging.

Figure 1.

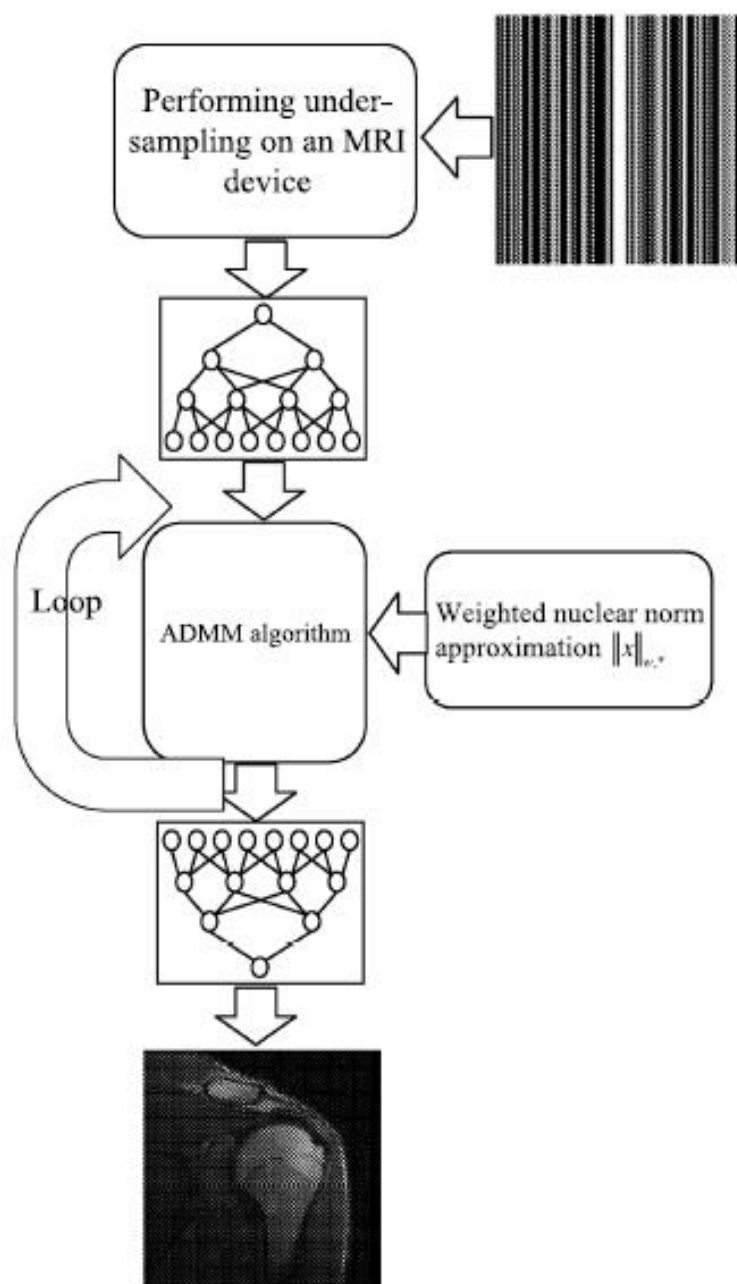


Fig 1.