

Alternating Direction Approximate Newton Method for Partially Parallel Imaging

09/24/2013

Abstract

It has been shown that the Bregman operator splitting algorithm with variable stepsize (BOSVS) is globally convergent and asymptotically efficient for magnetic resonance image reconstruction. However, the convergence of the algorithm relies on the choice of a number of parameters. This paper propose a new algorithm, alternating direction approximate Newton (ADAN) method for solving convex and possibly non-smooth optimization problem. The global convergence of this algorithm will be established. Experimental results and computational analysis are given using partially parallel magnetic resonance image reconstruction. We show that ADAN yields comparable performance to BOSVS, but it is simpler to implement and employs fewer parameters.