An inertial forward-backward algorithm for the minimization of the sum of two nonconvex functions

Szilárd László

10.10.2013

Abstract

We propose a forward-backward proximal-type algorithm with inertial/memory effects for minimizing the sum of a nonsmooth function with a smooth one in the nonconvex setting. Every sequence of iterates generated by the algorithm converges to a critical point of the objective function provided an appropriate regularization of the objective satisfies the Kurdyka- Lojasiewicz inequality, which is for instance fulfilled for semi-algebraic functions. We illustrate the theoretical results by considering two numerical experiments: the first one concerns the ability of recovering the local optimal solutions of nonconvex optimization problems, while the second one refers to the restoration of a noisy blurred image.