

Fast proximal bundle algorithms for nonsmooth convex optimization

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Keywords: Nesterov accelerated gradient method, Proximal methods.

Abstract: We propose new proximal bundle algorithms for minimizing a nonsmooth convex function. These algorithms are derived from the application of Nesterov fast gradient methods for smooth convex minimization to the so-called Moreau-Yosida regularization F_μ of f w.r.t. some $\mu > 0$. Since the exact values and gradients of F_μ are difficult to evaluate, we use approximate proximal points thanks to a bundle strategy to get implementable algorithms. One of these algorithms appears as an implementable version of a special case of inertial proximal algorithm. We give their complexity estimates in terms of the original function values, and report some preliminary numerical results.

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