Initial Improvement of the Hybrid Accelerated Gradient Descent Process

3 authors:

Stefan Panic
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Milena J. Petrović
University of Priština
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Miroslava MIHAJLOV Carević
Univerzitet ALFA
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INITIAL IMPROVEMENT OF THE HYBRID ACCELERATED GRADIENT DESCENT PROCESS

STEFAN PANIĆ, MILENA J. PETROVIĆ✉ and MIROSLAVA MIHAJLOV CAREVIĆ

Abstract

We improve the convergence properties of the iterative scheme for solving unconstrained optimisation problems introduced in Petrovic *et al.* ['Hybridization of accelerated gradient descent method', *Numer. Algorithms* (2017), doi:10.1007/s11075-017-0460-4] by optimising the value of the initial step length parameter in the backtracking line search procedure. We prove the validity of the algorithm and illustrate its advantages by numerical experiments and comparisons.