عنوان مقاله:

A stabilized simulated annealing-based Barzilai-Borwein method for the solution of unconstrained optimization problems

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خلاصه مقاله:

The Barzilai-Borwein method offers efficient step sizes for large-scale un-constrained optimization problems. However, it may not guarantee global convergence for nonquadratic objective functions. Simulated annealing-based on Barzilai-Borwein (SABB) method addresses this issue by in-corporating a simulated annealing rule. This work proposes a novel step-size strategy for the SABB method, referred to as the SABBm method. Furthermore, we introduce two stabilized variants: SABBstab and SABBmstab. SABBstab combines a simulated annealing rule with a sta-bilization step to ensure convergence. SABBmstab builds upon SABBstab, incorporating the modified step size derived from the SABBm method. The effectiveness and competitiveness of the proposed methods are demon-strated through numerical experiments on CUTEr benchmark problems.

کلمات کلیدی:

Unconstrained optimization, Barzilai-Borwein method, Simu-lated annealing method, Stabilized BB method

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