

عنوان مقاله:

A Nonmonotone Conjugate Residual SR $\setminus$ -Trust Region-Line Search Algorithm for Large Scale Unconstrained Optimization

محل انتشار:

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خلاصه مقاله:

Here, we present a new nonmonotone trust region-line search algorithm for solving large scale unconstrained optimization. At each iteration of our algorithm, the trust region subproblem is solved by a truncated conjugate residual (CR) method to obtain a step direction. Our new nonmonotone algorithm allows accepting a specified maximum number of consecutive "failed" iterations. When the number of consecutive failed iterations exceeds a specified limit, a backtracking line search process is used to obtain a sufficient reduction in the objective function. In fact, our proposed nonmonotone algorithm avoids resolving the trust region subproblem in the face of a failed iteration. Moreover, the symmetric rank one updating strategy is used to update the Hessian matrix approximation. Preliminary numerical results of an implementation of the proposed algorithm on some test problems from CUTEst library confirm the efficiency and robustness of the algorithm.

کلمات کلیدی:

Unconstrained Optimization, Quasi-Newton Method, Symmetric Rank One Update, Nonmonotone Method, Conjugate Residual

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