

Nocedal, Jorge; Overton, Michael L.

Projected Hessian updating algorithms for nonlinearly constrained optimization. (English)

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SIAM J. Numer. Anal. 22, 821-850 (1985).

This paper is concerned with quasi-Newton methods for minimizing a function subject to equality constraints. Specifically, an approximation to the Hessian of the Lagrangian function is considered. The methods differ in which part of this matrix is subject to updating. Proof of two-step Q-superlinear convergence is given for a "two-sided projected Hessian" updating algorithm, as well as numerical comparisons with other methods. All the methods are used without line-searches, but this may have a decisive influence on the performance.

Reviewer: H.Matthies

MSC:

65K05 Numerical mathematical programming methods

90C30 Nonlinear programming

Cited in **4** Reviews
Cited in **69** Documents

Keywords:

minimization with equality constraints; two-sided projected; Hessian updating algorithm; quasi-Newton methods; two-step Q-superlinear convergence; numerical comparisons

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