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A numerical study of the limited memory BFGS method an the truncated- Newton method for large scale optimization. (English) [Zbl 0756.65091](#)
SIAM J. Optim. 1, No. 3, 358-372 (1991).

The authors consider the smooth unconstrained minimization problem: $\min f(x)$, $x \in \mathbb{R}^n$. The limited memory Broyden-Fletcher-Goldfarb-Shanno (BFGS) method (L-BFGS) and the discrete truncated-Newton (TN) method are described; test problems and a numerical of the relative performance of L-BFGS and of TN-algorithms are presented. The authors prove that the conjugate gradient method is not competitive with TN or L- BFGS in terms of function evaluation. Detailed examples are given. The style is elegant.

Reviewer: [P.Stavre \(Craiova\)](#)

MSC:

[65K05](#) Numerical mathematical programming methods
[90C06](#) Large-scale problems in mathematical programming
[90C30](#) Nonlinear programming

Cited in **37** Documents

Keywords:

large scale optimization; limited memory Broyden-Fletcher-Goldfarb-Shanno method; smooth unconstrained minimization; test problems; performance; conjugate gradient method; truncated-Newton method

Software:

[L-BFGS](#)

Full Text: [DOI](#)