McCartin, Brian J.

A model-trust region algorithm utilizing a quadratic interpolant. (English) Zbl 0931.65060

J. Comput. Appl. Math. 91, No. 2, 249-259 (1998).

This paper deals with a new procedure for solving unconstrained optimization problems arising for instance through minimization of the norm of the residual of a system of nonlinear equations. The author presents an improvement to the standard "double dogleg" version of this algorithm via replacement of its piecewise-linear approximant by a quadratic interpolant. This method is compared to the "double dogleg" strategy on a suite of standard test problems. These techniques are included in model-trust region algorithms.

Reviewer: Yves Cherruault (Paris)

MSC:

65K05 Numerical mathematical programming methods
90C30 Nonlinear programming
90C55 Methods of successive quadratic programming type

Keywords:

numerical examples; quadratic interpolation; double dogleg strategy; unconstrained optimization; nonlinear equations; model-trust region algorithms

Software:

minpack

Full Text: DOI

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