An Interior Point Subspace Trust Region Method for Nonlinear Optimization Subject to Bounds

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Abstract: In this paper, we proposed a subspace trust region method which is combined with an interior point technique for minimizing a nonlinear function subject to simple bounds. Unlike most existing methods, the proposed method forms and solves the quadratic programming subproblem only in a limited memory subspace with only an ellipsoidal constraint. The points generated are strictly feasible, and the computation amount for solving the subproblem are reduced a lot by the subspace technique. Preliminary numerical experiments are reported which show the efficiency of the new method.

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