Docket #: S97-127

QPOPT (TM)

QPOPT is a software package for solving dense linear and quadratic programs. If the quadratic objective function is convex (definite or semidefinite), the solution obtained is a global optimum. For non-convex problems, the solution may be a local optimum or a dead-point (or unbounded).

The quadratic form x'Qx is defined by a user routine that computes Qx for a given vector x. (Hence some advantage arises if Q is sparse.) Linear constraints and bounds on the variables are treated separately by an active-set method. If the problem has no feasible solution, QPOPT minimizes the sum of the constraint and bound violations.

Applications

- General-purpose dense linear programming. Convex or non-convex quadratic programming.
- Engineering, Economics, Finance.

Advantages

- Portable code (Fortran 77). Matlab interface included.
- Numerically stable algorithms.
- Implicit definition of the quadratic objective via Qx products.
- Warm start capability.
- Elastic bounds on variables and constraints (for infeasible problems).

Publications

- P. E. Gill, W. Murray and M. A. Saunders, User's guide for QPOPT 1.0: A Fortran package for quadratic programming, Report SOL 95-4, Systems Optimization Laboratory, Stanford University (1995). (Same as Report NA 95-1, Dept of Mathematics, University of California, San Diego, 1995).

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