A New Penalty Function Algorithm For Convex Quadratic Programming

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Summary

In this paper, we develop an exterior point algorithm for convex quadratic programming using a penalty function approach. Each iteration in the algorithm consists of a single Newton step followed by a reduction in the value of the penalty parameter. The points generated by the algorithm follow an exterior path that we define. Convergence of the algorithm is established. The proposed algorithm was motivated by the work of Al-Sultan and Murty on nearest point problems, a special quadratic program. A preliminary implementation of the algorithm produced encouraging results. In particular, the algorithm requires a small and almost constant number of iterations to solve the small to medium size problems tested. (C) 1997 Elsevier Science B.V.

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