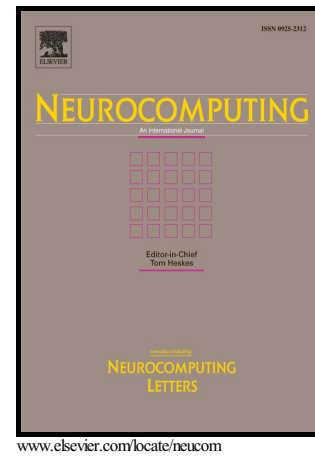


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Modified Alternating Direction Method of Multipliers for Convex Quadratic Semidefinite Programming *

Xiaokai Chang [†]Sanyang Liu[‡]Xu Li[§]

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Abstract

The direct extension of alternating direction method of multipliers (ADMM) is not necessarily convergent to the dual form of convex quadratic semidefinite programming (CQSDP) problems, though the convergence of ADMM is proved when two blocks of variables are alternatively updated. In this paper, we present a modified ADMM for solving the dual form of the CQSDP problems. At each iteration, the proposed method didn't have to work out the sub-problem with the primal variable, compared with the existing ADMM. Assuming that the penalty parameter satisfies the condition related to the quadratic term of the primal objective function, the convergence is proved by using a fixed-point argument. Numerical results for the nearest correlation matrix problems and the random CQSDP problems demonstrate the efficiency of our proposed algorithm.

Key words. Quadratic semidefinite programming, Alternating direction method of multipliers, Convergence analysis, Nearest correlation matrix problems.

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