Vanderbei, Robert J.

Splitting dense columns in sparse linear systems. (English) Zbl 0727.65034

Linear Algebra Appl. 152, 107-117 (1991).

Let $A = [S, D]$ where S and D denote respectively the sparse and dense columns of a matrix A. The author gives an efficient and robust method for solving $AA^T x = b$. The proposed method avoids the rank-deficiency problem that is common to the present algorithms and also makes an effective use of sparse matrix techniques. Applications to interior-point methods for linear programming and non-symmetric matrices are pointed out.

Reviewer: R.P.Tewarson (Stony Brook)

MSC:

65F30 Other matrix algorithms (MSC2010)
65F50 Computational methods for sparse matrices
65K05 Numerical mathematical programming methods

Keywords:

splitting dense columns; sparse matrix; interior-point methods; linear programming; non-symmetric matrices

Software:

ALPO

Full Text: DOI

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paper as accurately as possible without claiming the completeness or perfect precision of the matching.