

STABILITY ANALYSIS OF A GENERAL TOEPLITZ SYSTEM SOLVER

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ABSTRACT

We show that a fast algorithm for the QR factorization of a Toeplitz or Hankel matrix A is weakly stable in the sense that $R^T R$ is close to $A^T A$. Thus, when the algorithm is used to solve the semi-normal equations $R^T R x = A^T b$, we obtain a weakly stable method for the solution of a nonsingular Toeplitz or Hankel linear system $Ax = b$. The algorithm also applies to the solution of the full-rank Toeplitz or Hankel least squares problem $\min \|Ax - b\|_2$.

COMMENTS

Only the Abstract is given here. The full paper appeared as [1], based in part on [3] and the preliminary report [2].

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