

# ERROR ANALYSIS OF ALGORITHMS FOR MATRIX MULTIPLICATION AND TRIANGULAR DECOMPOSITION USING WINOGRAD'S IDENTITY

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## ABSTRACT

The number of multiplications required for matrix multiplication, for the triangular decomposition of a matrix with partial pivoting, and for the Cholesky decomposition of a positive definite symmetric matrix, can be roughly halved if Winograd's identity is used to compute the inner products involved. Floating-point error bounds for these algorithms are shown to be comparable to those for the normal methods provided that care is taken with scaling.

## COMMENTS

Only the Abstract is given here. The full paper appeared as [2]. For related work see [1, 3, 4].

## REFERENCES

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- [4] S. Winograd, "A new algorithm for inner product", *IEEE Transactions on Computers* C-17 (1968), 693–694.

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