

# Computing Hermite normal forms of integer matrices faster

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30th Applications of Computer Algebra - ACA 2025

The Hermite normal form of a non-singular integer matrix is a triangular form obtained using unimodular row operations. A natural goal from a complexity point of view is to show how to compute the form in about the same number of bit operations as required to multiply together two integer matrices of the same dimension and size of entries as the input matrix. In this talk, I will discuss some of our recent work towards achieving this goal. Some subroutines that we need are fast multiplication of integer matrices with columns having skewed bit-length, and computing the Hermite form of a matrix column-modulo a given Smith form.