Flop counts for dense linear-algebra operations

= floating-point operations (real ±, ×)

Square-matrix operation (real m × m)	Flop count (leading term)
matrix–matrix multiplication AB	$2m^3$
matrix addition $A + B$	m^2
matrix–vector multiplication Ax	$2m^2$
LU factorization $PA = LU$	$\frac{2}{3}m^3$, or $\frac{1}{3}m^3$ if $A = A^T \succcurlyeq 0$ (Cholesky)
triangular solve $L^{-1}b$ or $U^{-1}b$	m^2
Hessenberg factoriation	$\frac{10}{3}m^3$, or $\frac{4}{3}m^3$ if $A = A^T$

Tall matrix operation (real m × n)	Flop count (leading term)
QR factorization $A = QR$	$2mn^2 - \frac{2}{3}n^3$ (Householder) $2mn^2$ (modified Gram–Schmidt)

Implicit assumption: Dense-matrix calculations are dominated by flops (compute-bound). True?