

ARE RANDOMIZED NLA ALGORITHMS NUMERICALLY STABLE?

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Randomized algorithms in numerical linear algebra can provide efficient means for, for example, computing low-rank approximations, and solving least-squares problems, linear systems, and eigenvalue problems. An aspect that often gets overlooked is: are these methods numerically (backward) stable? In this talk I will highlight that the situation is quite subtle: for example, sketch-to-precondition methods for least-squares are not stable, and methods for low-rank approximation may require a careful implementation to be stable. Part of the talk is based on joint work with Maike Meier (University of Oxford, UK), Alex Townsend (Cornell University, USA), Marcus Webb (University of Manchester, UK).