A prospectus for Elemental

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Abstract

Elemental is a modern distributed-memory library for dense and sparse-direct linear algebra that is rapidly growing in functionality. This talk will begin with an overview of the library’s current design, with a focus on a 4D process grid abstraction for distributed matrix classes, as well as provide a description of the library’s current functionality (e.g., high-performance routines for computing pseudospectra).

Afterwards, a brief overview of the library’s experimental and planned features will be discussed (e.g., accurate symmetric sparse-direct factorizations, simplex and Interior Point Methods, support for computation over finite fields, etc.).