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Subject: Sparse Matrix Routines

Posted by [nhagen](#) on Tue, 20 Jul 2004 22:55:48 GMT

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IDL has a suite of sparse matrix routines based on those in Numerical Recipes in C, which optimize the algorithms for highly diagonal matrices (so that they store the diagonal elements separately from the rest of the nonzero elements). In the code I am currently working on, however, I have large rectangular matrices (of about  $10^{14}$  elements) which are extremely sparse (about  $10^5$  nonzero elements) and which are nothing like diagonal. I would much prefer to work with a set of sparse routines better suited to the problem (perhaps something simple such as storing the entire matrix as two vectors, one giving the nonzero values and the other giving the index locations) than use these standard routines, if at all possible.

Does anyone know of any code (in IDL or in any other language) that uses such a simple storage scheme or one which is better suited to nondiagonal matrices? I'd be happy to hear of any ideas, and thanks in advance.

- Marius Hagen

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