
Subject: Re: trired/triql and EOF/PCA
Posted by [k-bowman](#) on Fri, 25 Jan 2002 18:06:55 GMT
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In article <3c512bf9@news.nwl.ac.uk>, wmc@bas.ac.uk wrote:

> 'm trying to to EOF (=PCA) analysis, which involvees finding eigenvectors
> of a symmetric matrix. I use trired/triql (should I?). This works fine for
> small matrices but on large ones (well not very large... 500x500, perhaps)
> falls over with "too many iterations". But... there is no "how many
> iterations" parameter to set. Ideas?

I think you will be forced to use external libraries. LAPACK includes a number of robust eigenfunction routines and is free. I used LAPACK recently, and it was easier to write a short Fortran code than to link the LAPACK routines into IDL.

See, for example,

<http://www.netlib.no/netlib/lapack/>

or

<http://www.cs.colorado.edu/~lapack/>.

Ken

Subject: Re: trired/triql and EOF/PCA
Posted by [the_cacc](#) on Sat, 26 Jan 2002 17:58:52 GMT
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wmc@bas.ac.uk wrote in message news:<3c512bf9@news.nwl.ac.uk>...
> ..finding eigenvectors of a symmetric matrix.

I'm no expert on eigenvalue decomposition but I think singular value decomposition may be related (IDL routine "SVDC"). Pre-IDL 5.4, this had the no. of iterations hard-coded to be 20 so it fell down for moderate matrix sizes. Now there is an ITMAX keyword, which lets you set the max. no. of iterations. If you hassle IDL customer support you *may* be able to persuade them to provide such a keyword in the TRIRED/TRIQL functions. But that's for the future... As for doing partial decompositions, I don't think IDL has one.

Ciao.

Subject: Re: trired/triql and EOF/PCA

Posted by [the_cacc](#) on Sun, 27 Jan 2002 23:18:44 GMT

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Check this thread for discussion on the topic "SVD vs PCA":

<http://groups.google.com/groups?hl=en&threadm=5e0lod%247cr%40mozo.cc.purdue.edu&rnum=4&prev=/groups%3Fsourceid%3Dnavclient%26q%3D%253A%2BSubrata%2BChatterjee%2Bprincipal>
