Subject: Re: Matrix rank
Posted by Vince Hradil on Fri, 14 Dec 2007 17:49:50 GMT
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On Dec 14, 11:26 am, d.po...@gmail.com wrote:
> On Dec 14, 5:28 pm, Vince Hradil <hrad...@yahoo.com> wrote:
>
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>
>> On Dec 14, 9:42 am, Wox <nom...@hotmail.com> wrote:
>
>>> On Fri, 14 Dec 2007 06:35:11 -0800 (PST), Vince Hradil
>
>>> <hrad...@yahoo.com> wrote:
>>>> IDL can do SVD, can you get the rank from that? Look up SVDC in the
>>>> docs.
>
>>> I could do this, but maybe there's a better way?
>
>>> ; A: integers
>>> ; B: floats
>>> A = [[0,0,1], $
>>> [0,1,0], $
>>> [0,0,0]]
>>> B = [0.25,0.5,1]
>
>>> ; Decompose A
>>> SVDC, A, W, U, V
>>> ; Solve A.X=B
>>> X=SVSOL(U, W, V, B)
>
>>> ; Check
>>> B2=A##X
>>> ind=where(total(abs(A),1,/pres) ne 0)
>
>>> if array_equal(B[ind],B2[ind]) then print,X
>
>> Well, w contains the singular values, the number of these that are non-
>> zero will be the rank:
>> idx = where(w ne 0, rank)
>> print, rank
>> 2
>
>> Does anyone else read the Help??????- Hide quoted text -
>
>> - Show quoted text -
>
> Huuum!!! what about NORM?

Well...
2-norm would be the maximum Singular Value: max(w)
trace norm would be the sum of the SVs: total(w)
Frobenius norm would be the sqrt of the sum of the squares of the SVs:
sqrt(total(w*w))
I think... see: http://en.wikipedia.org/wiki/Singular_value_decomposition

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