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:
>
>
>> 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