Subject: Re: svd experts?
Posted by R.G.S. on Thu, 28 Jun 2001 14:32:04 GMT
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Thanks Dennis and Craig for the repsonses!

Cheers,
bob stockwell

Dennis Boccippio <djboccip@hotmail.com> wrote in message
 news:djboccip-E005D8.01323127062001@news.mia.bellsouth.net.. .
> Not an SVD expert, but a while back I came across the following info
> when using SVD as an alternative to normal-equations solution of an
> overdetermined system:
>
> It is wise to scale A to have equal _column lengths_, particularly if
> the columns of A have very different numerical magnitudes (as might be
> obtained if A represented an instrument response kernel for inverting
> observations or fitting a model). Thus, the SVD would be performed on
> Z, where:
>
> $Z = A \ S^{-1}$
>
> and S is a diagonal matrix consisting of the roots of the diagonal
> elements of A*A (A-transpose A).
>
> I can't recall what the motivation for this was; numerical stability or
> some issue unique to SVD use in overdetermined systems.
>
> I *believe* the reference for this is:
>
> Belsley, Kuh and Welch (1980): Regression Diagnostics, Identifying
> Influential Data and Sources of Collinearity, John Wiley & Sons, 292 pp.
> (SVD played of course a big part in their treatment of inversion of
> ill-conditioned matrices).
>
> If not, it may be:
>
> Draper and Smith (1981): Applied Regression Analysis. John Wiley &
> Sons, 407 pp.

>
> Sorry for the ambiguity, it's been ~6 years since I had to deal with
> this and can't recall the exact reference...
>
> - Dennis Boccippio, NASA/MSFC SD-60
>
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