Subject: Re: SVDC in IDL 5.0
Posted by Henry Chapman on Thu, 18 Sep 1997 07:00:00 GMT
View Forum Message <> Reply to Message

T.Osborn wrote:
>
> A quick question about SVDC:
>
> Most singular value decomposition routines I have used/read about
> appear to return a diagonal matrix of singular values (or just a
> list), in which the singular values are in descending order. When
> I use the IDL routine SVDC,A,W,U,V, the list of values in W is not in
> such an order (for one example I get W=[0,0.33,0.29E-7,0.12E-7,
> 0.14E-7,... etc.]).
>
> Am I doing something wrong, or is this just how the IDL routine
> works? Can I re-order them into descending order by simply sorting
> them and switching the singular vectors (columns) of U & V in the
> same way?
>
> Thanks for any help
>
> Tim

This is just the way IDL does it, and you can certainly reorder as you guessed. Here's a routine to do it:

```
PRO svdc_sort, m, diag, u, v

;Singular value decomposition with diagonal elements ordered from
;largest to smallest
;
;written by Henry Chapman, AMP, LLNL
;November, 1996

svdc, m, diag, u, v
s = reverse(sort(diag))
n = n_elements(diag)
rr = fltarr(n, n)
i = indgen(n)
rr[i, s[i]] = 1.
v = v##rr
u = u##rr
diag = diag[s]

return
END
```

--
Henry Chapman
mailto:chapman9@llnl.gov
Advanced Microtechnology Program
Lawrence Livermore National Lab
L-395, P.O. Box 808, Livermore CA 94550