Subject: Re: least square matrix
Posted by Craig Markwardt on Fri, 11 Mar 2005 13:22:11 GMT
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"Matthias Demuzere" <Matthias.demuzere@geo.kuleuven.ac.be> writes:
> Hi,
>
> Because my question maybe still a bit unclear, here it is again:
>
> I have a dataset of temperatures taken at hourly steps (k-value, ranging
> from 1-24) for a whole
> month (with i days). Now, I would like to compare each temperature Tk,i with
> every other Tk,j with j the same number of days as in i. I would like to do
> that comparison by least square methods like this
>
> Matrix Ai,j = sum (Tk,i-Tk,j)^2
>
> where the matrix Ai,j is a symmetrical matrix (because i,j are the same
> day).

In IDL notation, this would be:

```
FOR I = 0, NDAYS-1 DO FOR J = 0, NDAYS-1 DO $
  A(I,J) = TOTAL(T(*,I) - T(*,J))
```

assuming A = FLTARR(NDAYS,NDAYS) and T = FLTARR(24,NDAYS). As an exercise, you could optimize to only do I GT J.

>
> How can that be done in IDL?
>
> I was thinking of some FOR statements, like this:
>
> FOR i=1, i LE 31, i++ DO BEGIN
> FOR j=1, j LE 31, j++ DO BEGIN
> FOR k=1, k LE 24, k++ DO BEGIN
> function
> ENDFOR
> ENDFOR
> ENDFOR
>
> But this doesn't seems to work really...Any idees, tips,...??

No, it wouldn't work, because it's not IDL. I invite you to read up on the FOR statement in the documentation, but here are some starters:

* IDL array indices start with 0
* IDL's FOR statement is not C-like

Good luck,

Craig

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Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
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Subject: Re: least square matrix
Posted by James Kuyper on Fri, 11 Mar 2005 14:43:56 GMT
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Matthias Demuzere wrote:
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> day).
>
> How can that be done in IDL?

sum(Tk,i-Tk,j)
= sum(Tk,i^2 -2Tk,i*Tk,j+Tk,j^2)
= sum(Tk,i^2) -2 sum(Tk,i*Tk,j)+sum(Tk,j^2)

```
T = indgen(31,24)*0.1
T2 = (T^2)#replicate(1,24,31)
A = T2 -2*T#transpose(T)+transpose(T2)
```