Subject: Re: Help with getting rid of a FOR loop
Posted by pgrigis on Tue, 20 May 2008 23:20:01 GMT
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You may try the following strategy:

- compute the distance from Sun center for each pixel, store in r
- histogram the array r from 0 to sunradius in "num" bins
- caveat: this will give 1dim array indices. If you need back 2 dim
array
(probably not) use array_indices

Not sure if it going to be faster, but is worth a try.

Cheers,

Paolo

nathan12343 wrote:
> Hi, all
>
> Recently, I've been going through some old code in an effort to make
> it run a bit faster. My primary tool in this adventure has been the
> elimination of unnecessary FOR loops - all this code was written
> before I read David Fanning's article on 'The IDL Way'.
>
> This particular piece of code is used to approximate the center to
> limb variation in full-disk solar images. It identifies pixels that
> are on the solar disk and assigns them a value according to whether
> they're in between two radii given in a vector, r. This defines a set
> of annuli which cover the solar disk, the number of which is given by
> num. This information is stored in the mask array and returned.
> Here's the actual code:
>
> PRO generate_annuli,radius,xcenter,ycenter,num,mask
>
> ;radius - solar radius
> ;xcenter - x coord of solar disk center
> ;ycenter - y coord of solar disk center
> ;num - number of annuli for CLV approximation
> ;mask - the output mask
>
> ; No integer overflows
> compile_opt IDL2
>
> imsize=2048L ;images are 2048X2048
> mu=reverse(findgen(num+1))/(num) ;Generates values for mu
> r=radius*sqrt(1-mu^2) ;Inner radii for all the

```
>  annuli
>
>  xx=rebin(findgen(imsize),imsize,imsize)  ;array of x indices
>  yy=transpose(xx)                         ;array of y indices
>
>  dist=sqrt((xx-xcenter)^2+(yy-ycenter)^2)  ;array of radii
>
>  mask=fltarr(imsize,imsize)-1
>
>  FOR i=0,num-1 DO BEGIN
>     wh=where(dist GE r[i] and dist LE r[i+1])
>     mask[wh]=i
>  ENDFOR
>
>  END
>
>  I would like to find some way to get rid of the FOR loop at the end.
>  All I'm doing in that loop is going through the annuli one by one,
>  finding the pixels in that annuli, and setting the corresponding
>  pixels in mask to the correct mask value.
>
>  Thanks for any help anyone can provide!
>
>  Nathan Goldbaum
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