Subject: Re: Average over odd/even lines
Posted by JD Smith on Thu, 07 Dec 2006 18:58:50 GMT
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On Wed, 06 Dec 2006 19:46:16 -0800, Pete wrote:

> Hi All,
>
> I am trying to write an IDL program for "smoothing" over lines of image
> data acquired with an aerial CCD system. This requires reading the odd
> lines, calculating the mean and placing it in the even. The images are
> a constant 640x480 pixels.
>
> i.e.)
> line 1 : 2 2 2 2...
> line 2 : x x x x...
> line 3 : 4 4 4 4...
>
> After processing,
>
> line 1 : 2 2 2 2...
> line 2 : 3 3 3 3...
> line 3 : 4 4 4 4...
>
> I can think of several ways to implement this but I thought the group
> may point me to the most efficient.

This is a good chance to use the mostly neglected stride operator for
IDL's range subscripts, which has the syntax [low:high:stride].

```
d=size(a,/DIMENSIONS)
x=indgen(d[0]) & y=findgen((d[1]-1)/2)+.5
a[*,1:d[1]-2:2]=interpolate(a[*,0:*:2],x,y,/GRID)
```

Note that the last line is unchanged for images with an even number of
lines (that comes from (d[1]-1)/2).

Since your dimensions never change, you can cache x & y and use them
over and over. For this reason as well, it might also be faster to
expand out [*,1:d[1]-2:2] etc. into index arrays and cache them,
rather than have IDL recompute them for each image. It would be
lovely if IDL provided a function to convert a given subscript syntax
into an array of indices, but I don't believe it has one.

JD