Subject: Re: Help requested in eradicating FOR loops Posted by Vince Hradil on Fri, 14 Dec 2007 16:24:29 GMT

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On Dec 14, 10:06 am, dplat...@gmail.com wrote:
> Dear IDL users,
>
      I would really appreciate some help in removing a nested FOR loop.
>
      FOR x=0, image width-1 DO BEGIN
                           FOR y=0, image_height-1 DO BEGIN
>
                                             ; Write the current pixel value
>
                                             results[(x*mtf_region_height)+y, 1] = image[x,y]
>
                                             ; Calculate the distance of the current pixel from the
>
> line defined
> by the
                                             ; two points (x1, y1) and (x2, y2).
>
                                             results[(x^*image\_height)+y, 0] = ((y1-y2)^*x + (x2-y)^*x + (y1-y2)^*x + (y2-y)^*x + (y1-y2)^*x + (y1-y2)
> x1)*y + (x1*y2 -
> x2*y1) ) / SQRT((x2-x1)^2 + (y2-y1)^2)
                           ENDFOR
> ENDFOR
> 'image' is a 2d image array
> I want to work out the distance of each pixel from a line that is
> defined by the two points (x1, y1), (x2, y2) and store this distance,
> together with the pixel value in a 'results' array. The 'results'
> array has the dimensions [(image height*image width), 2].
>
      The above bit of code works but is a bit slow.
> Any advice would be much appreciated.
>
> Thanks,
>
> David
> Northampton, UK
Off the top of my head:
1-reform the points to match the size of the image: x1 =
reform(x1,image height,image width)
2-make in "index" array: idx = findgen(image_height,image_width)
3-make x-index and y-index arrays: x = idx mod image_height & y = idx/
image_height (or maybe those should be image_width?)
4-do the calculation: distance = ((y_1-y_2)^*x + (x_2-x_1)^*y + (x_1^*y_2-x_1^*)^*x + 
x2*y1) ) / SQRT( (x2-x1)^2 + (y2-y1)^2 )
5-put together the results matrix: results =
[[reform(image,image height*image width)],[distance]] (I'd have to
```

Page 2 of 2 ---- Generated from comp.lang.idl-pvwave archive