Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by David Fanning on Mon, 14 Apr 2003 13:13:54 GMT
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> I have a question about the very useful functions SEARCH2D and SEARCH3D. Is
> it possible to limit the search for similar cells to a radius or sphere
> surrounding the pixel referred by the xpos/ypos/zpos-parameters of these
> functions? If not, is it possible to implement an algorithm (if no built-in
> function is available) that takes the indices returned by these functions an
> cut every index that lies outside a specified radius/sphere? I would
> appreciate if you could give me a hint how this algorithm may look like.

This seems fairly straightforward to me.

1. Convert indices to 2D or 3D subscripts (article here last week).
2. Calculate distance (radius) from each index to the seed point.
3. Discard if distance is greater than radius of circle or sphere.

All of this can be easily vectorized, so it soul be extremely fast.

Cheers,

David
--
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Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by David Fanning on Mon, 14 Apr 2003 13:16:09 GMT
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David Fanning (david@dfanning.com) writes:

> All of this can be easily vectorized, so it soul be extremely fast.

Whoops! Little Freudian slip there, no doubt caused by
social activities this weekend. :-(

Should read, "so it *should* be extremely fast".

Cheers,

David

--
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Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by on Mon, 14 Apr 2003 20:41:08 GMT
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Hi David,

thank you very much. It's working good. For the distance caluculation I used a for loop. I did not implement the square root function for distance calculation since this costs CPU time. I raised the allowed maximum radius to the power of two and compare it to the computed distance each time.

Only for my understanding: Is is possible to do this without the "evil" for loop? Is there another way to tell IDL that the operation has to be done for each element of the subscripts array?

Thank you very much for sharing your deep insight of IDL. :-)

Alex

_____

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_____

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Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by David Fanning on Mon, 14 Apr 2003 20:56:56 GMT
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> thank you very much. It's working good. For the distance caluculation I used

> a for loop. I did not implement the square root function for distance
> calculation since this costs CPU time. I raised the allowed maximum radius
> to the power of two and compare it to the computed distance each time.
>
> Only for my understanding: Is is possible to do this without the "evil" for
> loop? Is there another way to tell IDL that the operation has to be done for
> each element of the subscripts array?

For the 2D case, I was envisioning something like this:

```
indices = Search2d(array, x, y)
s = Size(array, /Dimensions)
cols = indices MOD s[0]
rows = indices / s[0]
radius = Sqrt( (cols - x)^2 + (rows - y)^2)
goodPixels = Where(radius LT myCircleRadius)
cols = cols[goodPixels]
rows = rows[goodPixels]
```

> Thank you very much for sharing your deep insight of IDL. :-)

I think you have me confused with JD. :-)

Cheers,

David
--
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Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by on Mon, 14 Apr 2003 21:28:32 GMT
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|David Fanning" <david@dfanning.com> schrieb im Newsbeitrag
news:MPG.1904ce8036cec863989b50@news.frii.com...
| indices = Search2d(array, x, y)
| s = Size(array, /Dimensions)
| cols = indices MOD s[0]
| rows = indices / s[0]
| radius = Sqrt( (cols - x)^2 + (rows - y)^2)
| goodPixels = Where(radius LT myCircleRadius)
| cols = cols[goodPixels]
| rows = rows[goodPixels]

That's looking much better. Slowly I get behind the tricks of IDL. In the past I was coding only C, so I am used to write for loops when I wanted to process all elements of an array. I've learned very much, thanks again.

Unfortunately there's one stupid question left:
How to determine cols, rows and frames for 3D space? :)

| > Thank you very much for sharing your deep insight of IDL. :-)
| I think you have me confused with JD. :-)
Mhh, maybe this was caused due to my social activities this weekend. J/K :)

Alex

---

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Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by David Fanning on Tue, 15 Apr 2003 02:03:07 GMT
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> Unfortunately there's one stupid question left:
> How to determine cols, rows and frames for 3D space? :)

I thought we answered that question for you last week. :-)

Here is an article, along with a pointer to the L_GETDIM
code offered by Mark Schellens:

http://www.dfanning.com/tips/where_to_2d.html

Cheers,

David
--
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Subject: Re: Maximum radius of SEARCH2D/SEARCH3D
Posted by on Wed, 16 Apr 2003 21:08:20 GMT
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Sorry David. I was just to silly to link your answer from last week to this case. I thought there might be something else to do to get the coordinates of the array values. Why, I don't know for sure. Anyway, thanks for your support. Also in the terrible cases like me :)

Best regards,

Alex