Subject: Re: finding the center of gravity of an irregularly shaped roi within a 2d array
Posted by David Fanning on Mon, 03 Sep 2012 13:42:08 GMT
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Ian writes:

> I have an array (e.g. fltarr[1133,751]) with a range of different flag values, and i want to find the center of gravity of irregularly shaped regions of interest within this array that consist of units sharing the same value. Units which make up a roi will all be connected.
>
> e.g. i=where(array eq 1,ict)
> Find center of gravity of i.
>
> I want the result to be a location that makes sense within the parent array.
>
> Is anybody able to help?

I think you are interested in "blob analysis." :-)

http://www.idlcoyote.com/ip_tips/blobanalysis.html

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: finding the center of gravity of an irregularly shaped roi within a 2d array
Posted by ian.j.ashpole on Mon, 03 Sep 2012 13:58:42 GMT
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Ah, looks like i am :-) Thanks very much David!
If i can ask, as i am unable to find this in the code as a relative novice, how does your program actually calculate the centroid coordinates?

Cheers,
Ian

Subject: Re: finding the center of gravity of an irregularly shaped roi within a 2d array
Posted by David Fanning on Mon, 03 Sep 2012 16:24:43 GMT
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ian.j.ashpole@googlemail.com writes:

> If i can ask, as i am unable to find this in the code as a relative novice, how does your program actually calculate the centroid coordinates?

Each pixel in the ROI is assigned a "weight" of 1, then
a simple center-of-mass calculation is done:

```
totalMass = Total(array)
xcm = Total( Total(array, 2) * Indgen(arrayXSize) * scale[0] ) $
      / totalMass
ycm = Total( Total(array, 1) * Indgen(arrayYSize) * scale[1] ) $
      / totalMass
center = [xcm, ycm]
```

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: finding the center of gravity of an irregularly shaped roi within a 2d array
Posted by David Fanning on Mon, 03 Sep 2012 16:26:40 GMT
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David Fanning writes:

>
> ian.j.ashpole@googlemail.com writes:
>
>> If i can ask, as i am unable to find this in the code as a relative novice, how does your program actually calculate the centroid coordinates?
>
> Each pixel in the ROI is assigned a "weight" of 1, then
> a simple center-of-mass calculation is done:
>

```
>      totalMass = Total(array)
>      xcm = Total( Total(array, 2) * Indgen(arrayXSize) * scale[0] ) $
>            / totalMass
>      ycm = Total( Total(array, 1) * Indgen(arrayYSize) * scale[1] ) $
>            / totalMass
>      center = [xcm, ycm]
```

Sorry, I meant to include a link to additional information about
center-of-mass calculations:

  http://www.idlcoyote.com/tips/centroid.html

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: finding the center of gravity of an irregularly shaped roi within a 2d array
Posted by ian.j.ashpole on Tue, 04 Sep 2012 11:35:58 GMT
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Brilliant! Thanks for your help David :-)
Ian
