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Subject: Re: Region inside the CONTOUR  
Posted by [btt](#) on Tue, 02 Aug 2005 13:13:37 GMT  
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James wrote:

```
> Hi !
>
> Can anyone help me with a problem ? There is a ROI in the image for which
> I want to get some statistics. Basically what are needed: total flux of the
> area inside the ROI and the parameters of the ellipse, fitted to that
> region.
> Is there ant robust way of doing that ?
>
> I have several ROIs in the image and this is how I define them:
>
> .....
>
> contour, im1, PATH_XY=xy, PATH_INFO=info, LEVELS=[3*sigma],
> PATH_DATA_COORDS=1
>
> data_index = WHERE(info(*).N GT 15) ; ---- select regions larger than
> 15 pixels
> data_total = size (data_index,/N_ELEMENTS)
> my_roi = PTRARR (data_total, /ALLOCATE_HEAP)
>
> for i=0L, data_total-1 do begin
>     s = [indgen(info(data_index[i]).N),0]
>     *my_roi[i] = xy(*,info(data_index[i]).offset + s)
> endfor
>
```

Hi,

First is a heads up about contour... the N field of PATH\_INFO structure is the number of vertices that make up the contour. From your description, it looks like you are assuming that N describes the number of pixels contained within the contour. This will be a gothcha unless you want to use the number of vertices as a size proxy.

This is a great place to start regarding the ellipse fitting, etc. You may find that all of your questions are answered there.

<http://www.dfanning.com/documents/tips.html#ImageProcessing>

The IDL Image Processing User Guide is very helpful, too.

Lastly, for most image and roi processing I have gravitated away from CONTOUR toward the following (roughly outlined) path...

Segment the image into foreground and background

Use LABEL\_REGION to 'colorize' the foreground features. Be aware that LABEL\_REGION treats image edge pixels as background, so depending upon you needs you might want to pad the image with a border of pixels.

Depending upon you needs you could use IMAGE\_STATISTICS if that suits your needs or...

Use HISTOGRAM and REVERSE\_INDICES to extract the ROIs (you can filter based upon number of pixels at this time, retrieve the flux of original pixels, etc.)

Convert the pixels indices to XY coords. Use one of David's boundary finding routines if you prefer to have the boundary instead.

Pass the coords to IDLanROI as a convenient place holder. It has a number useful methods... to which you can add your own.

You kind of have to fill in the details - but that seems to work quite well for me.

Cheers,  
Ben

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Subject: Re: Region inside the CONTOUR  
Posted by [James\[1\]](#) on Tue, 02 Aug 2005 13:35:25 GMT  
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Hi Ben,

Thank you very much for the answer ! Actually the reason, why I'm using the CONTOUR procedure is the following. Actually the image structure is quite messy and the contrast between the ROIs and the background is very low.

I tried to apply some segmentation algorithms, but without much success.

On the other hand, since I need some quantative estimations of the parameters,

I have to start with certain sigma level above the background (a threshold for object detection).

Also, I've read corresponding nice articles of David Fanning on his website. But I'm asking here for a robust procedure which presumably has been already written by someone here.

Cheers,  
James

- > First is a heads up about contour... the N field of PATH\_INFO structure
- > is the number of vertices that make up the contour. From your
- > description, it looks like you are assuming that N describes the number
- > of pixels contained within the contour. This will be a gotcha unless
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- > your needs or...
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- > Use HISTOGRAM and REVERSE\_INDICES to extract the ROIs (you can filter
- > based upon number of pixels at this time, retrieve the flux of original
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- > Convert the pixels indices to XY coords. Use one of David's boundary
- > finding routines if you prefer to have the boundary instead.
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- > Pass the coords to IDLanROI as a convenient place holder. It has a
- > number useful methods... to which you can add your own.
- >
- >
- > You kind of have to fill in the details - but that seems to work quite
- > well for me.
- >

> Cheers,  
> Ben  
>

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Subject: Re: Region inside the CONTOUR  
Posted by [David Fanning](#) on Tue, 02 Aug 2005 14:23:15 GMT  
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James writes:

> Also, I've read corresponding nice articles of David Fanning on his  
> website. But I'm asking here for a robust procedure which presumably has  
> been already written by someone here.

I think you pretty much ask in vain. :-)

Many of us have to deal with these kinds of problems. Ben has given you a very thorough outline of how the problem is solved. I've made tools that I've found helpful in solving the problem available on my web page. But I doubt very much that there exists a "robust procedure" that is going to work for you. There are just too many variables to make such a procedure possible.

Cheers,

David

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David Fanning, Ph.D.  
Fanning Software Consulting, Inc.  
Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

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