Subject: Image analysis and ring identification
Posted by Rachel Pepper on Wed, 17 Apr 2002 13:55:58 GMT
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I am a fairly new IDL user trying to use image analysis to determine particle positions in my images. After filtering the images, they appear to be bright rings around a dark center. I was wondering if anyone knew a routine to fit these sorts of images to a circle so that the center of the ring could be determined. Thanks for any help!

Rachel

Subject: Re: Image analysis and ring identification
Posted by Rachel Pepper on Thu, 18 Apr 2002 18:47:41 GMT
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Sorry to be so confusing! I want the center of the circle (ie the bright ring) and the bright spots are messing up the centroid-based method (James is right).

Rachel

David Fanning wrote:

> James Kuyper (kuyper@gscmail.gsfc.nasa.gov) writes:
>
>> Yes, but I didn't get the impression that he wants to find the bright
>> spot. He asked how to determine the center of the circle, and complained
>> about the fact that the bright spot would mess up the centroid-based
>> method of calculating the center, because the bright spot was off-center.
>
> Isn't language odd? I thought she asked how to find the
> center of the ring, but then realized she wasn't interested
> in the center, but in the bright spot, which wasn't necessarily
> in the center. I think she might be able to have her cake
> and eat it too, depending upon the values she uses to
> calculate the centroid. In fact, she might even learn
> something fascinating about her rings by measuringg how
> the centroid changes between the two different calculations.
>
> But, hang on a minute! We don't have to be Aristotle and
> his friends arguing endlessly about how many teeth a
> horse has, we can ask the source. Rachel, what in the
> world are you asking about?
>
> Cheers,
>
> David

> --
> David W. Fanning, Ph.D.
> Fanning Software Consulting
> Phone: 970-221-0438, E-mail: david@dfanning.com
> Coyote's Guide to IDL Programming: http://www.dfanning.com/
> Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Image analysis and ring identification
Posted by Karsten Rodenacker on Fri, 19 Apr 2002 07:14:38 GMT
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Without proposing completly ready written routines. Maybe you do:
1. Contour with path_xy on you (binary) image. You get pathes for the outer and inner border (thers is a flag in path_info)
2. Take the outer border path say xy from one 'ring' and calculate a normalized contour path, by:

nxy=fft_norcur(xy,centr=av,size=sz,perim=p)

as far as I remind me in av you will find the centroid coordinates, in sz the radius and in p the perimeter.

```
FUNCTION sh_dist, xy
   L = sqrt(sh_diff(reform(xy[0, *]))^2+ $
         sh_diff(reform(xy[1, *]))^2)
   return,L
end
FUNCTION fft_norcur, xy, CENTROID=cav, FACTOR=av, SIZE=sz, PERIMETER=p
  dim=(size(xy))[1]
  n=(size(xy))[2]
  d=sh_dist(xy)
  vd=fltarr(dim,n)
  FOR i=0,dim-1 DO vd[i,*]=d
  cav=total(xy*vd,2)/total(vd,2)
  oxy=xy
  oxy[0,*]=reform(xy[0,*])-cav[0]
  oxy[1,*]=reform(xy[1,*])-cav[1]
  p=total(d)
  tt=oxy[0,*]^2+oxy[1,*]^2
  sz=sqrt(total(tt))
  av=total(sqrt(tt)*d)/p
  return,oxy/av
END
```

Regards

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>
>

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Karsten Rodenacker ()
---------- ----------:-)
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Subject: Re: Image analysis and ring identification
Posted by Jonathan Joseph on Mon, 22 Apr 2002 18:56:29 GMT
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How large are these rings that you are talking about?

I have some IDL code that will fit an ellipse to a group of points.
It requires at least 6 input points. The center is readily available.

I hesitate to just post it because it's not my own code.
I found the code on the web written in java and took the bits that
were relevant to me and converted them to IDL. It's publicly
available code - but very few comments, no warranty, etc. I
believe the original author's name is Maurizio Pilu (see
http://vision.dai.ed.ac.uk/maurizp/ElliFitDemo/ for a demo)

If it looks useful, I can post my IDL code.

-Jonathan

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