Subject: Re: Image segmentation programs in IDL?
Posted by Karsten Rodenacker on Thu, 14 Dec 2006 07:46:24 GMT
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Hi, you are showing interesting images. Still I don't understand what you would like to do.
Do you mean with "Segmentation" that connected objects are labeled and characterized? Or would you like to quantify the simulation results in general? Or ... there are infinite possibilities.

I would recommend:
1. Global analysis:
 Area
 A(time,minority fraction) = total(Simulationresult(time, minority fraction) ge 0.)
 Surface estimate
 S(time,minority fraction) = A(time,minority fraction) - $
 total(erode(Simulationresult(time, minority fraction) ge 0.,[[0,1,0],[1,1,1],[0,1,0]]))

2. Object analysis: for each labeled object i
 L = label_region(Simulationresult(time, minority fraction) ge 0.)
 E = erode(Simulationresult(time, minority fraction) ge 0.,[[0,1,0],[1,1,1],[0,1,0]])
 Area
 A(i,time,minority fraction) = total(L eq i)
 Surface estimate
 S(i,time,minority fraction) = A(i,time,minority fraction) - $
 total(E * (L eq i))
and so on
3. Object count with wrap around is a bit cumbersome with the label_region behavior in mind. For that I think a merging routine for border touching objects have to be written.

Regards
Karsten

Am Wed, 13 Dec 2006 15:39:09 +0100 schrieb Tim <anonymouse@anonymouse.net>:

> I am looking for image segmentation routines that are available in or
> written in IDL. I think my images are not very challenging. They have
> been thresholded, so that the regions I want to segment all have values
> of -1, and the background is +1. The boundaries are smooth. Examples of
> the images can be found about a third of the way down the page at
> http://physics.kenyon.edu/people/sullivan/Research/CahnHilli ard/ .
>
> I am aware of the particle tracking algoriths of Crocker, Weeks, and
> Spalding, et al., but their problem is identifying same size circular

> images and my objects vary in widely size and shape.
>
> There is one complication that I can live without at first, but would
> eventually need to rectify. My fields are have periodic boundary
> conditions, so eventually I would like an algorithm that identified as
> one object, an object that wraps around the top and bottom and left and
> right sides of the image.
>
> If I knew anything about image segmentation, I suspect this would be
> easy. But I don't. Any help would be appreciated.
>
> Tim Sullivan
> sullivan@kenyon.edu

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