
Subject: Re: Area of a Blob

Posted by [thompson](#) on Thu, 12 Dec 2002 19:19:04 GMT

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Without knowing much about the details of the individual methods, I would guess that each uses a different interpolation technique to convert the discrete measurements into continuous space. Obviously, that would give you different answers. There are mathematical texts which discuss the assumptions and errors associated with different interpolation techniques. I seem to recall a discussion of this in Numerical Recipes, but I don't have a copy to hand to check.

William Thompson

David Fanning <david@dfanning.com> writes:

> Folks,

> Here is a question for you:

> How much money did you make this year?

> Oh, wait, sorry. That has the same answer, but

> it's the wrong question. Here it is:

> What is the area of a blob on an image?

> The answer, of course, is that it depends on who

> is asking.

> Ben Tupper and I were musing about this question this

> week, because it turns out you can get several answers,

> depending upon how you calculate it.

> Here are the results I got for a typical "blob" on

> an image I am analyzing:

> Area by

> Simple Count: 7390.00

> Russ Method: 7236.50

> PolyfillV Method: 7313.00

> IDLgrROI computeGeometry: 7236.50

> IDLgrROI Mask Method: 7391.00

> The Simple Count method just finds the unique indices in

> the ROI. The Russ method and the PolyFillV method involve

> calculating the chain code boundary of the ROI and using

> that to count the area of the pixels inside the boundary.
> The PolyFillV method misses most of the boundary pixels
> on the upper-right of the ROI. The Russ algorithm is this:

$$> \text{area} = \text{sum}((x(i) + x(i-1)) * (y(i) - y(i-1))) / 2.$$

> Where X and Y are the boundary points that close back on
> themselves. (We use my FIND_BOUNDARY program to find the
> boundary.)

> The Compute Geometry and ROI Mask method are used in
> IDL IDLgrROI object.

> What do you make of this? Does anyone have any insight?
> Does it matter how you computer area as long as you are
> consistent? Or is one method more accurate than others?
> What is the *real* answer?

> Appreciate your thoughts. :-)

> Cheers,

> David

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