
Subject: Re: Compute area between curves
Posted by [frankosuna](#) on Wed, 15 Oct 2008 20:37:53 GMT
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Ok, I will try to explain what is going on.

I have a 3D wireframe model of Saturn and its rings. This wireframe (which is superimposed over an image) is shifted and rotated to match an image. The wireframe contains rings of Saturn and the image contains the edges to where those rings belong. Scientists tweak the wireframe so that it matches those edges, thus correcting spacecraft pointing vectors. This is called C-Smithing or Camera Smithing.

<http://frankosuna.googlepages.com/wireframe2.jpg>

This image is taken from the wireframe. I used region growing so that when the user clicks on a ring in the wireframe, it selects that ring (so that they can use that ring to match it to an edge) and create this image.

<http://frankosuna.googlepages.com/edgeDetect2.jpg>

This image is created by utilizing a saturn image that contains many features from saturn (like the edges of its rings). This in fact is an edge to a ring from Saturn.

Region growing is used when the user selects a point in the image (this should be the corresponding ring from the wireframe). Based on that point where the user clicks, it region grows that section and creates this image.

I have an algorithm that tries to match two images of the same scene but different perspectives meaning that one image might be scaled, rotated, or shifted differently than the other image.

The values taken from this algorithm are used to correct the wireframe so that we can match it to the corresponding edge and therefor correcting the spacecraft pointing vectors.

I need to come up with some measurement to see how close the edge detected ring from the image and the ring from the wireframe are. They are ellipses and they do cross since we're trying to get them as close as possible.

I hope this clears things up.

Thanks for taking time to respond with such detailed answers,

Frank
