Subject: Re: Ellipse fitting?
Posted by Kenneth P. Bowman on Tue, 12 May 2009 22:10:28 GMT
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In article
<36e1b1d7-1a57-4da6-afa4-d4925ed150ea@g20g2000vba.googlegroups.com>,
robparker23@googlemail.com wrote:

> Hi,
>
> I was hoping that someone could help with this.
>
> I have a satellite footprint which is more or less elliptical. I have
> the 4 coordinates of the top, bottom, left and right-most points and
> want to fit an ellipse to these 4 coordinates.
>
> I've put a diagram here to explain: http://img217.imageshack.us/img217/5048/ellipse.png
>
> I've googled this quite a bit and there seem to be lots of ways to fit
> ellipses to complicated data sets using techniques like optimal
> estimation but I can't find an easy/quick way of doing it. To do this
> manually I think I could just take the equation for an ellipse and
> adjust it to fit but I need to do this automatically for a large
> number of points where the shape of the ellipse will change depending
> on the location.
>
> This gets slightly more complicated (doesn't it always) as the shape
> may not quite be an ellipse due to the geometry of the satellite (it
> might have one side slightly "fatter" than the other) and it might be
> titled at an angle (so not horizontal).
>
> Does IDL have any ellipse fitting capabilities built in or is anyone
> familar with a solution that might work?
>
> Cheers

If you know those four point, then you can find the center of the ellipse,
the semi-major axis a, and the semi-minor axis b, which are all of the parameters
of an ellipse (except for an arbitrary rotation).

Look up the definition of an ellipse in your analytical geometry text
or the fount of all wisdom

http://en.wikipedia.org/wiki/Ellipse

Ken Bowman