
Subject: Re: Ellipse fitting?

Posted by [David Gell](#) on Wed, 13 May 2009 13:18:52 GMT

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On May 12, 3:36 pm, robparke...@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
> tilted 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

For what purpose do you want to fit the four points to an ellipse? If it is to plot the foot print, you might be better off computing the location of a number of points around the foot print and plot them. For reference see Wertz,J.R and W.J. Larson(eds), Space Mission Analysis and Design, Kluwer Academic Publishers, 1999 ISBN 1-881883-10-8. In particular Chapter 7 Section 2, "Earth Coverage"
