Subject: Re: Rendering and Code like Points2polys
Posted by Mark Hadfield on Wed, 27 Sep 2000 05:10:55 GMT
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"Larry Busse" <ljb@ljbdev.com> wrote in message
news:39CB7E28.596301A1@ljbdev.com...
> I've been given a list of xyz points on the surface of an object and I'd
> like to be able to use the IDLgrPolygon object to view them. This
> requires trigulation....generating lists of vertices (the original
> points) and a list of faces (list of indices that define each polygon,
> or triangle, on the surfaces.) I found a WindowsNT program by Parasoft
> called Points2Polys that will do this but it would certainly be more
> convenient if I could do it directly within IDL.

I am very much a novice in the area of triangulation, computational geometry etc, but I'll contribute my $0.02 and see who contradicts me.

Do you mean that the xyz points *define* the surface of the object and you want to visualise the object? In that case what you want is a 3-dimensional triangulation of your points. (If that is not what you want then the rest of this post is off the topic.)

The IDL triangulation procedure, TRIANGULATE,
won't do it because it only does planar or spherical triangulations (the latter referring to locations on the surface of a sphere).

MESH_OBJ generates 3-D triangulated data sets, but I don't think it will do what you want. In one of its modes of operation it triangulates irregular data, but this is just a planar triangulation of the x & y components of the data. Its other modes of operation generate various 3D objects of simplified geometry (extrusions, solids of revolution)

SHADE_VOLUME generates 3-D meshes, but it fits iso-surfaces to 3D gridded datasets, which is not what you have.

So AFAIK IDL will not do what you want. Needless to say, it would be possible to write a routine for 3-D triangulation and if you do I'd love to see it!

I hate to say this but there is a very good spatial & geometric analysis toolbox for Matlab:

http://puddle.mit.edu/~glenn/kirill/saga.html

It has a multi-dimensional triangulation routine. You might want to take a look at its FAQ for an introduction to spatial & geometric analysis concepts.

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