Subject: triangulation tribulation: alpha shape for raster-to-vector shape extraction (sort of a concave hull)
Posted by MarioIncandenza on Thu, 05 Feb 2015 18:11:24 GMT
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Hello IDL wizards,

I have a routine that takes XY coordinates and assigns each coordinate a region. The regions are static, but the polygons associated with each cannot be easily extracted. However, certain applications want just that, they want the bounding polygon for each region. The exact definition of a bounding 2-D polygon is an ordered list of vertices with XY coordinates for each.

A convex hull is close-but-not-quite for this purpose, but I think something like an alpha shape would get me there: http://doc.cgal.org/latest/Alpha_shapes_2/index.html

I found a simple application to calculate alpha shapes: http://www.netlib.org/voronoi/hull.html (to compile with a modern gcc, you will also need this patch: http://michalmazurek.eu/programming/convex-hull-computation/).

Now, the 'hull' software computes the Alpha shape and delivers the coordinates of all the *facets*, which is the definition of the alpha shape in N dimensions. However, in 2 dimensions, the facets can be ordered, and the shape can be represented by a series of vertices. But the 'hull' software doesn't do this, it gives the facets in as far as I can tell a random order.

Any triangulation experts have ideas on how to do this?

Regards,

--Edward H.