
Subject: Re: Check if a point is inside a polygon mesh
Posted by [Karl Schultz](#) on Thu, 18 Aug 2005 16:10:07 GMT
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On Thu, 18 Aug 2005 03:53:19 -0700, photosalex@freenet.de wrote:

> Hello, All!
>
> Does anybody know a way to figure out if a 3D point lies inside a
> closed 3D triangular polygon mesh. The mesh is a tricky engineering
> construction of thousands of vertices with holes, stems, supports etc.,
> rather than a rectangular slab.
>
> The question arose basically from the task to find the coordinates of
> the intersection(s) of a ray with an arbitrary volumetric IDL model.
> I've searched the newsgroups but couldn't find a ready answer.
>
> If anyone provides me with information on either problems, I'd be very
> grateful.
>
> Cheers!

One way to do it is to create a point that you know is outside of the mesh. Use that point and the point in question to define a line segment. Then, perform a simple triangle/line-segment intersection check for each triangle in the mesh and keep track of the number of times the line intersects a triangle. If the total number of intersections is odd, the point in question is considered to be inside the closed mesh.

Karl
