
Subject: Re: tetra_volume

Posted by [Randall Frank](#) on Thu, 30 Aug 2001 04:23:36 GMT

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Vince,

Vince Hradil wrote:

>

> Has anyone ever used tetra_volume and/or tetra_surface? Or any suggestions for something else?

Yes, and they worked quite well for me. As for suggestions...

As noted by other more knowledgeable folks (Karl), the TETRA_* routines were designed to work with tetrahedron meshes. From your description, it does not sound like you have such a volume mesh. Rather, you may have a polygonal mesh (e.g. the result of a "marching cubes"-like operation). If you have a closed polygonal surface, you can compute the enclosed volume with MESH_VOLUME. Check the "closed" nature with MESH_ISSOLID first, but you can get the enclosed volume of any polygonal mesh without conversion to tets this way (it does not have to be a single object and does not need to be convex). You should be able to send the output of MESH_OBJ (or IDLanROIGroup::ComputeMesh, or ISOSURFACE in some cases) directly to MESH_VOLUME.

The question as to the (improved?) accuracy of volume estimates derived via techniques such as smoothed volume isocontouring is really dataset dependent, if that is where you were headed with this approach (voxel counting vs isosurface volume). Fractionated voxel counting will probably give just as good results as contouring and then computing volume, much more quickly.

Hope it helps...

>

> I am trying to measure the volume of a solid (uniform density) object given either (1) the vertices of the convex hull or (2) the voxels within the object [or (3) both 1 and 2]. I realize that I can just multiply the number of

> voxels within the object by the voxel volume to get an estimate of the volume, but I want to see if I can estimate the volume better using the sum of tetrahedral volumes.

>

> Thanks in advance.

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> Vince

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rjf.
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