Subject: Re: Measuring sphericity of a set of voxels.
Posted by penteado on Fri, 28 Aug 2009 05:22:12 GMT
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On Aug 28, 1:32 am, Gianguido Cianci <gianguido.cia...@gmail.com>
wrote:
> Does anybody have ideas on how one could determine how close to
> spherically symmetric a set of voxel intensities are?
>
> The way I see it there are two separate questions:
>
> 1. how rotationally symmetric are the brightness values
> 2. how constant are the values as you get farther from the center
>
> I am most interested in #1. But #2 is cool too!
>
> Was thinking of getting the principal axes and checking how similar
> they are to each other for Q #1... but I suspect there might be a
> better way.

Though spherical distributions have 3 equal moments of inertia, it
also happens for other shapes (a cube being one of them, if I remember
right).

You could calculate the density as a function of spherical
coordinates, and them see how constant the density is for a given
radius (or the integrated mass under some radius), as a function of
the two angles. The first thing I would do is to make a plot of those
quantities to see how flat the curves are, then start looking for
measures of it (the standard deviation being the simplest one). It
seems to me that the tricky part to calculate those things may be
resolution issues, if the number of points you have is not very large.