Subject: Re: 3d matrix rotation
Posted by David Fanning on Thu, 02 Jan 2003 21:20:36 GMT
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New2IDL (biomedthesis2002@yahoo.com) writes:

> I'm trying to rotate a 3D matrix using trackball. I have a 3D matrix
> of size 512x512x25. Hwn i try to rotate it, the matrix stretches along
> Z-axis. Hwn displayed the image is perfectly fine. Can anybody explain
> why that happens and what can be done to fix it. When i tried a
> dataset from the example (head.dat) for the same code, the rotation
> takes place without any stretch.

Sounds to me like you are applying the transformation matrix
to the data itself, rather than to the model that holds
the data. Apply the transformation to the model.

Cheers,

David

--
David W. Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: 3d matrix rotation
Posted by Rick Towler on Thu, 02 Jan 2003 23:56:58 GMT
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"David Fanning" <david@dfanning.com> wrote...
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> the data. Apply the transformation to the model.

If all you wish to do is to visualize your data then as David is hinting you

may want to create an IDLgrVolume object with your data, place that into a IDLgrModel object and then apply the transform from your trackball to the IDLgrModel transform.

If you have a reason to apply the transform directly to your data then look for differences between your data set and head.dat (which you said transforms correctly). It is hard to say much more since your posting is a bit vague. You say the matrix stretches along the Z-axis but then you say the image is "perfectly fine". What image?

-Rick

Subject: Re: 3d matrix rotation
Posted by jacobian on Sun, 05 Jan 2003 19:01:46 GMT
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probably your volume is not isotropic (i.e. each voxel has the same voxel size in every dimension, for example 1mm x 1mm x 1mm). So, when you rotate it with the transformation matrix it assumes the volume is isotropic and 'stretches' the z dimension.

There are various ways to solve for that:

1. Use congrid to resample your volume to isotropic dimensions.
2. Incorporate the changes in the transformation matrix itself and then apply the Tx matrix (just multiply them actually, the matrices).

Make sure that you write down on paper what dimension becomes what and what the initial and final voxel sizes are. Otherwise your result might
appear OK, but there will be errors. In short: DimX_1*voxmm_1 = DimX_2*voxmm_2
(dimension times mm should be the same and equal to the total distance in
one direction).

hope this helps a bit,

G.

"Rick Towler" <rtowler@u.washington.edu> wrote in message news:<av2jqcugi1@nntp6.u.washington.edu>...
> "David Fanning" <david@dfanning.com> wrote...
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