
Subject: Problems with EXTRACT_SLICE
Posted by [David Foster](#) on Mon, 06 Apr 1998 07:00:00 GMT
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Hi Everyone!

This is pretty esoteric, and may only interest those involved with medical imaging or other applications that use 3D volume arrays.

In-a-Nutshell:

EXTRACT_SLICE produces incorrect orientations when the rotations involve any rotations near 90 degrees (resulting in an exchange-of-axes).

We work with medical images here, and often have to "reslice" a 3D volume array at a new orientation. I have written a routine that borrows most of the code from EXTRACT_SLICE, and also allows you to account for the thickness of the slices.

In EXTRACT_SLICE you pass the X_rot, Y_rot and Z_rot angles and you are supposed to get an image oriented relative to those angles. To illustrate the problem, say you pass a 90-degree angle for Y_rot, to produce an imaging plane orthogonal to the original images. Since, as the documentation for EXTRACT_SLICE tells you, the Z_rot angle is applied first, and *then* the Y_rot, the Z angle ends up being applied relative to the X axis, not Z! This is because the Y rotation results in an exchange of axes between X and Z.

What I have done is to limit the number of exchange-of-axis rotations to one (reasonable given our application), and apply any such rotation FIRST, so any subsequent rotations are applied to their correct axes.

Has anyone else encountered this problem? I would be interested in your solutions!

Thanks!

Dave

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