Subject: Cubic interpolation in 3D
Posted by rfulton on Thu, 08 Dec 1994 03:57:13 GMT
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I am performing some 3D transformations on a 3D dataset using IDL 3.6.
The dataset is 64x64x64, which is actually a stack of contiguous
slices (each 64x64).

The T3D procedure is very nice for accumulating consecutive
translations and rotations in the 4x4 transformation matrix !P.T.

To apply the transformations I've tried the IDL Interpolate function, which
can be used for 1-, 2- or 3-D interpolation. Interpolate.pro allows
the use of the CUBIC keyword which gives the optimal interpolation for
my purposes. The trouble is, when I attempt 3D interpolation specifying
the /CUBIC keyword, the function appears to perform trilinear interpolation
rather than cubic. I seem to remember seeing somewhere in the documentation
that /CUBIC only applies to 1- or 2-D data, but I can't find it
again to confirm this.

Does anyone know for sure whether it is possible to perform 3D cubic
interpolation with the IDL Interpolate function ? If it is not,
is there any obvious reason why it has not been implemented. (eg.
does performing 3 sequence of three 2-d cubic interpolations give
exactly the same result as one 3-d cubic interpolation ? If that's
the case it would still be a good idea to allow 3D cubic interpolation
just to avoid extra coding IMHO.)

Alternatively has anyone modified or rewritten INterpolate.pro to allow
3D cubic ? Actually I'm interested in trying all kinds of interpolation that
may be implemented out there. Please let me know if you have any exotic
interpolation routines that you'd be willing to share.

Many thanks

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Subject: Re: cubic interpolation
Posted by safier on Mon, 30 Oct 1995 08:00:00 GMT
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>>>> > "brooker" == brooker <brooker@ccfm.ireq.ca> writes:

    brooker> guys, Interpol from the user lib only does linear
    brooker> interpolation of the input vector to an irregular grid
    brooker> and I am affraid that I need to do a cubic
    brooker> interpolation. Does anybody have this routine or must I
    brooker> write it myself?

    brooker> Thanks-peter brooker

    brooker> p.s.- oui ou non? today is the day for canada

 spline does a cubic spline interpolation. If you need cubic interpolation in two dimensions I have translated the Numerical Recipes bicubic spline routines to IDL, and will be glad to give them to you.

Cheers,

Pedro
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