

---

Subject: Cubic interpolation in 3D

Posted by [rfulton](#) on Thu, 08 Dec 1994 03:57:13 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

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

Roger Fulton

=====  
Nuclear Medicine  
Royal Prince Alfred Hospital  
Sydney  
Australia.

email: [rfulton@atom.ansto.gov.au](mailto:rfulton@atom.ansto.gov.au)  
tel: 61-2-516 8011  
fax: 61-2-550 5172  
=====