Subject: Re: Multidimensional Interpolation
Posted by R.G. Stockwell on Mon, 21 Jul 2003 19:46:17 GMT

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"Ian Chapman" <ian@terraengine.com> wrote in message
news:1b6a0bfb.0307210740.baef502@posting.google.com...
> Hi,
>
> I have created a 5 dimensional data cube (pressure, temperature,
> relative humidity, frequency, transmission) with a radiative transfer
> model. I have a user that will need to get transmission data for
> given values of the rest of the parameters, so I am currently planning
> to interpolate the cube to the input values of the user.
>
> Does anyone know of any multi-dimensional interpolation routines
> (similar to spline) that would be able to perform this task?
>
> -Ian

LOESS (local regression) interpolation is popular with some satellite
processing groups.
It is pretty straight forward (just set up your least squares fit equation
for an appropriate
function, like a quadratic, and solve with svd or cholskey).

A brief writeup is at
 http://www.colorado-research.com/~stockwel/qscatsmp/qscatsmp .shtml

this may be a wee bit slow for you though.

Cheers,
bob