Subject: Re: Interpolation of missing data
Posted by thompson on Thu, 22 Jan 1998 08:00:00 GMT
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rkj@dukebar.crml.uab.edu (R. Kyle Justice) writes:

> mirko_vukovic@notes.mrc.sony.com wrote:
> : In article <6a2t1p$mfd@maze.dpo.uab.edu>,
> : rkj@dukebar.crml.uab.edu (R. Kyle Justice) wrote:
> : >
> : > I have a 2-D array with missing data. Is there an easy way to
> : > interpolate the missing values?
> : >
> : > I would like to replace a missing value with the average of
> : > its neighbors.
> : >
> : > Kyle J.

> : I found the median_filter (under image processing applications)
> : usefull in similar situations.

> : good luck,

> : mirko

> The only problem here is that the median filter ignores boundary
> values. That is, if the missing value to be replaced is on the
> edge of the "image" I am out of luck. Is it supposed to do this???

Yes, unfortunately.

At one point I wrote a routine called fmedian which did the same thing as the built-in median function, but with smoothly decreasing filter width at the edges. It also allows for different widths in the two spatial directions. You can find the routine at

http://sohowww.nascom.nasa.gov/solarsoft/gen/idl/util/

ftp://sohoftp.nascom.nasa.gov/solarsoft/gen/idl/util/

You'll need both fmedian.pro and fmedian_slow.pro. There's also some CALL_EXTERNAL software to speed up the routine at /gen/idl_external. It's written in Fortran--sorry. The routine will work, however, without the CALL_EXTERNAL support--it'll just be slower.

A different way to do almost the same thing with the built-in median procedure would be to embed your image in a bigger image with appropriate data at the

edges. Take the median of the bigger image, and then throw away the edges.
The trick would be to figure out what data to put at the edges of the bigger
image before taking the median filter.

Bill
