Subject: Re: Interpolating Irregular 2D Data
Posted by Achim Hein on Fri, 21 Mar 1997 08:00:00 GMT
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Bijan Pesaran wrote:
>
> Hi,
>
> I have z=(x,y) data on a spiral and I want to sample it on a
> grid for further manipulations, specifically kernel smoothing.
>
> I don't see how to use interpolate or bilinear to do this. They both
> seem to require the input data to be on a grid already ...
>
I think there are two possibilities of soluting this problem:

First, you can oversample your signal by zero padding in the frequency domain to get higher resolution in the time domain. If you take the oversampling factor big enough, you can sample your data down to the grid.
But I think the faster way is to interpolate the irregular data down to equidistant twodimensional axis - simultaneously, you smooth your data because of the interpolating.

Cheers

Achim
--

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Please have a look at our Web-Sites:

http://www.nv.et-inf.uni-siegen.de/pb2/

Subject: Re: Interpolating Irregular 2D Data
Posted by peter on Wed, 26 Mar 1997 08:00:00 GMT

Achim Hein (hein@nv.et-inf.uni-siegen.de) wrote:
: Bijan Pesaran wrote:
: >
: > I have z=(x,y) data on a spiral and I want to sample it on a
: > grid for further manipulations, specifically kernel smoothing.
: >

: But I think the faster way is to interpolate the irregular data down to
: equidistant twodimensional axis - simultaneously, you smooth your data
: because of the interpolating.

Achim's suggestion is a good way to go -- the data on the spiral can be placed onto a grid and smoothed at the same time by the procedure known as gridding (essentially, convolving the non-rectilinear data with a smoothing kernel onto the grid points). Very hard to do fast in IDL, due to required (?) nested loops, since potentially every data point lies at unique distances from its surrounding grid points, and thus requires calculation of the interpolation weights; I've used a call_external program to do it rapidly (and, in fact, to do spiral to rectilinear conversion).

Peter