Subject: Re: weighting: irregular grid
Posted by Jean H. on Fri, 05 Sep 2008 15:53:11 GMT
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> One can define the area that a data point occupies by drawing lines
> perpendicular to the line connecting the point with neighboring
> points: eventually one will have some sort of polygon enclosing the
> point. One can then weight the f-value by the area of the polygon.
> Something like this would work very well for me.

the proper term for this is Voronoi Polygons... I have no idea if it's
implemented or not in IDL..

Jean

Subject: Re: weighting: irregular grid
Posted by Jean H. on Fri, 05 Sep 2008 15:54:26 GMT
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Jean H wrote:
>> One can define the area that a data point occupies by drawing lines
>> perpendicular to the line connecting the point with neighboring
>> points: eventually one will have some sort of polygon enclosing the
>> point. One can then weight the f-value by the area of the polygon.
>> Something like this would work very well for me.
>
> the proper term for this is Voronoi Polygons... I have no idea if it's
> implemented or not in IDL..
>
> Jean

oops, I should have opened the help file before to say that... there is
a Voronoi procedure readily available!

Jean

Subject: Re: weighting: irregular grid
Posted by pgrigis on Fri, 05 Sep 2008 15:58:00 GMT
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Mark wrote:
> Hello.
>
> I'm sure someone has come up with code to do this, so rather than re-
> invent the wheel:

>
> I have a dataset: f(x,y),x,y, where the x and y grids are somewhat
> irregular. I can use trigrid and triangulate to get an image of f, of
> course, but what I really need is f weighted by the area each data
> point occupies.
Maybe you should first define "area each data point occupies"...
do you mean the area of the voronoi region around the point?

Ciao,
Paolo

>
> One can define the area that a data point occupies by drawing lines
> perpendicular to the line connecting the point with neighboring
> points: eventually one will have some sort of polygon enclosing the
> point. One can then weight the f-value by the area of the polygon.
> Something like this would work very well for me.
>
> Does anyone know of code that accomplishes something like this before
> I kill a day or two trying to write it myself? No doubt IDL has a
> canned routine that does this but I haven't been able to find it....
>
> Thanks very much,
>
> Mark

Subject: Re: weighting: irregular grid
Posted by pgrigis on Fri, 05 Sep 2008 16:00:23 GMT
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Mark wrote:
> Hello.
>
> I'm sure someone has come up with code to do this, so rather than re-
> invent the wheel:
>
> I have a dataset: f(x,y),x,y, where the x and y grids are somewhat
> irregular. I can use trigrid and triangulate to get an image of f, of
> course, but what I really need is f weighted by the area each data
> point occupies.
>
> One can define the area that a data point occupies by drawing lines
> perpendicular to the line connecting the point with neighboring
> points: eventually one will have some sort of polygon enclosing the
> point. One can then weight the f-value by the area of the polygon.
> Something like this would work very well for me.

This is called the "voronoi" region, which can easily be computed
from the Delauney triangulation: see 21.7 in Numerical recipes 3d
edition.
(ignore my previous post).

Paolo

>
> Does anyone know of code that accomplishes something like this before
> I kill a day or two trying to write it myself? No doubt IDL has a
> canned routine that does this but I haven't been able to find it....
>
> Thanks very much,
>
> Mark

Subject: Re: weighting: irregular grid
Posted by astroboy2k on Fri, 05 Sep 2008 18:13:10 GMT
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On Sep 5, 11:54 am, Jean H <jghas...@DELTHIS.ucalgary.ANDTHIS.ca>
wrote:
> Jean H wrote:
>>> One can define the area that a data point occupies by drawing lines
>>> perpendicular to the line connecting the point with neighboring
>>> points: eventually one will have some sort of polygon enclosing the
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>> the proper term for this is Voronoi Polygons... I have no idea if it's
>> implemented or not in IDL..
>
>> Jean
>
> oops, I should have opened the help file before to say that... there is
> a Voronoi procedure readily available!

Thanks everyone. I've never heard the expression Voronoi polygon so no
wonder I couldn't find anything in IDL help!

Mark
>
> Jean
