Subject: Re: 2D-fit
Posted by Paul Van Delst[1] on Tue, 02 Mar 2004 15:53:47 GMT
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Esa Riihonen wrote:
>
> Hi all!
>
> I seek advice on fitting a following function with 2-free variables mu and
> phi (Below '.' indicates multiplication and '^2' power of 2):
>
> F(mu,phi) = a0 + a1.mu + a2.mu^2 + (a3.mu + a4.mu^2).cos(phi-phi0),
>
> phi0 is a constant and ai are the fitting parameters.
>
> Measurement set consists of 240 values (10 values for mu and 24 for phi,
> this in effect a polar coordinate grid with 24 'sectors' and 10 'rings').
>
> So the question what is the best way of doing this in IDL?

THE best way would be to download Craig Markwardt's MPFIT library and use that. Not only is it more robust than equivalent IDL procedures, there's a *lot* more functionality that will allow you to fit stuff oh so much faster.

Seriously, go to

 http://cow.physics.wisc.edu/~craigm/idl/idl.html

and grab his MPFIT library.

paulv

--
Paul van Delst
CIMSS @ NOAA/NCEP/EMC

Subject: Re: 2D-fit
Posted by Esa Riihonen on Tue, 02 Mar 2004 16:58:24 GMT
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On Tue, 02 Mar 2004 10:53:47 -0500, Paul van Delst wrote:

[snip]

> *THE* best way would be to download Craig Markwardt's MPFIT library and
> use that. Not only is it more robust than equivalent IDL procedures,
> there's a *lot* more functionality that will allow you to fit stuff oh so

> much faster.
>
> Seriously, go to
>
> http://cow.physics.wisc.edu/~craigm/idl/idl.html
>
> and grab his MPFIT library.
>
> paulv

Did that, looks just what I needed.

Thanks,

Esa

--
Esa Riihonen - esa@riihonen.st.net (Remove spam trap = '.st')

The CT Creed: "There is no Game but Traveller,
and High Guard is its Product" Steve Hudson

Subject: Re: 2D-fit
Posted by Craig Markwardt on Tue, 02 Mar 2004 17:36:18 GMT
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Esa Riihonen <esa@riihonen.st.net> writes:

> Hi all!
>
> I seek advice on fitting a following function with 2-free variables mu and
> phi (Below '.' indicates multiplication and '^2' power of 2):
>
> F(mu,phi) = a0 + a1.mu + a2.mu^2 + (a3.mu + a4.mu^2).cos(phi-phi0),
>
> phi0 is a constant and ai are the fitting parameters.
>
> Measurement set consists of 240 values (10 values for mu and 24 for phi,
> this in effect a polar coordinate grid with 24 'sectors' and 10 'rings').

Greetings, in addition to Paul's reply, I would like to mention that my FAQ contains discussion of fitting functions of more than one variable. And, if you have an even spaced 2D grid, then you can likely use MPFIT2DFUN.

Craig

--
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Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
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Subject: Re: 2D-fit
Posted by Esa Riihonen on Wed, 03 Mar 2004 08:53:26 GMT
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On Tue, 02 Mar 2004 11:36:18 -0600, Craig Markwardt wrote:

[snip]

> Greetings, in addition to Paul's reply, I would like to mention that my
> FAQ contains discussion of fitting functions of more than one variable.
> And, if you have an even spaced 2D grid, then you can likely use
> MPFIT2DFUN.
>
> Craig

Hi!

Thanks for the FAQ tip. And yes, MPFIT2DFUN, looks just right for the job.

Furthermore, I used IDL's own CURVEFIT for an earlier (1-d) fit. I guess I could use it in principle also here, but was seeking for a more intuitive (for me) approach. However I was puzzled with the error estimates I got for the parameters (they just don't make sense). If I understood what I have read from the documentations thus far, MPFIT seems to addresses this problem also.

Cheers,

Esa

--
Esa Riihonen - esa@riihonen.st.net (Remove spam trap = '.st')

The CT Creed: "There is no Game but Traveller,
and High Guard is its Product" Steve Hudson