
Subject: Re: What is the difference between 'curvefit', 'lmfit' and 'svdfit' procedure?
Posted by duxiyu@gmail.com on Thu, 08 Mar 2007 01:19:02 GMT
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On Mar 7, 11:02 pm, "R.G. Stockwell" <n...@email.please> wrote:

> <dux...@gmail.com> wrote in message
>
> news:1173260085.952428.100150@q40g2000cwq.googlegroups.com.. .
>
>> I have a set of 'x' and 'y', and want to use a special function 'f(x)'
>> to fit it.
>
>> The function 'f(x)' contains three parameters.
>
>> But I'm confused by the three different procedure 'curvefit', 'lmfit'
>> and 'svdfit'.
>
> The difference is essentially between 1) linear least square error fits,
> and 2) non-linear least square error fit.
>
> In 1) you directly calculate the resulting fit.
> You start with the matrix equation
> $Ax = b$
>
> where x is the unknown. 'A' is a matrix where your
> fitting function is evaluated at each point (and is usually
> not square).
>
> The LSF solution is:
>
> $A^tAx = A^tb$
> $x = (A^tA)^{-1}A^tb$
>
> The svd routines solve this matrix equation.
>
> For 2) you make an error function
> error = data - nonlinear function(x)
>
> and you search around parameter space to try to
> find the minimum error. This may not converge, it probably
> depends on an initial guess, and can be very time consuming.
> This is what curvefit and the others do.
>
> If you can create a linear fit, then 1) is the way to go.
> If it is non-linear, google for mpfit, widely hailed as a superior
> non-linear fitting routine.
> (i'll google: <http://cow.physics.wisc.edu/~craigm/idl/idl.html>)
>

> Cheers,
> bob

Thanks for your explanation.

In your statement 1) means SVDFIT and 2) means LMFIT and CURVEFIT,
doesn't it?

When I want to create a linear fit, there are many choices like
LINFIT, LADFIT and SVDFIT.

But I'm confused which one I should select.

Best regards,
Du Jian
