fd_luni@mail.com writes:

> I was wondering if anyone knows an alternative function of CURVEFIT. If I am not mistaken the
CURVEFIT uses the Levenberg-Marquart algorithm. I need to use a different algorithm which
provides a numerical solution to the problem of minimising a function, generally non-linear.
> Nelder–Mead method and Newton-Raphson are some choices but I was wondering if there is
a function in IDL like the CURVEFIT.

Nearly all the experienced IDL users I know use Craig Markwardt's curve
fitting programs:

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

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Well, according to the IDL documentation, curvefit uses the gradient-expansion algorithm ---
whereas lmfit uses Levenburg-marquardt. I suppose these could be the same algorithm, but it
seems odd. The Markwardt stuff that David pointed you to is two different algorithms:
Levenburg-marquardt and truncated newton (i'm fairly sure these are actually different).

Now, the Nelder-Mead is just the amoeba algorithm --- as coded in IDL by ... amoeba.pro.

Now, there are others in IDL as well: dfpmin, powell, and a few others (which assume linearity).

Can you compute the derivative of the function to minimize analytically? The answer to that will
dictate what options you have.

Finally, I agree with David. the MPFIT from Markwardt is probably the best all-purpose thing in
IDL.

Russell

On Wednesday, May 29, 2013 11:19:27 AM UTC-4, fd_...@mail.com wrote:
> Hi all
>
>
>
> I was wondering if anyone knows an alternative function of CURVEFIT. If I am not mistaken the CURVEFIT uses the Levenberg-Marquart algorithm. I need to use a different algorithm which provides a numerical solution to the problem of minimising a function, generally non-linear.
>
> Nelder–Mead method and Newton-Raphson are some choices but I was wondering if there is a function in IDL like the CURVEFIT.
>
>
>
> With Thanks
>
> M

Subject: Re: alternative to CURVEFIT function
Posted by Craig Markwardt on Thu, 30 May 2013 01:39:08 GMT
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On Wednesday, May 29, 2013 11:19:27 AM UTC-4, fd_...@mail.com wrote:
> I was wondering if anyone knows an alternative function of CURVEFIT. If I am not mistaken the CURVEFIT uses the Levenberg-Marquart algorithm. I need to use a different algorithm which provides a numerical solution to the problem of minimising a function, generally non-linear.
>
> Nelder–Mead method and Newton-Raphson are some choices but I was wondering if there is a function in IDL like the CURVEFIT.

Adding to what the other posters said...

If you can any way express your function as the sum of squared residuals, then you should try to use the MPFIT family of functions. It is far more stable than CURVEFIT.

Note that you can sometimes bend the rules. If your optimization function is the sum of *somethings*, then often you can rewrite the somethings as (somethings elses)^2. As long as (something else) is signed, you can use MPFIT.

If you really need general function minimization, then yes you can try my TNMIN. If your user function is smooth then it will find a minimum with a Newton-type method.

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

Subject: Re: alternative to CURVEFIT function
Posted by Russell Ryan on Thu, 30 May 2013 18:47:59 GMT

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On Wednesday, May 29, 2013 9:39:08 PM UTC-4, Craig Markwardt wrote:
> On Wednesday, May 29, 2013 11:19:27 AM UTC-4, fd_...@mail.com wrote:
>
>> I was wondering if anyone knows an alternative function of CURVEFIT. If I am not mistaken the CURVEFIT uses the Levenberg-Marquart algorithm. I need to use a different algorithm which provides a numerical solution to the problem of minimising a function, generally non-linear.
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>
>
>
> Craig
>
>   http://cow.physics.wisc.edu/~craigm/idl/fitting.html

BTW, Craig. What does MPFIT stand for? I mean, I can guess about what FIT is... But MP?

R

Subject: Re: alternative to CURVEFIT function
Posted by Meg on Thu, 30 May 2013 19:05:26 GMT

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On Wednesday, May 29, 2013 9:39:08 PM UTC-4, Craig Markwardt wrote:
> On Wednesday, May 29, 2013 11:19:27 AM UTC-4, fd_...@mail.com wrote:
>
>> I was wondering if anyone knows an alternative function of CURVEFIT. If I am not mistaken
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>
> Craig
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>   http://cow.physics.wisc.edu/~craigm/idl/fitting.html

Hi,

I'm trying to learn more about MPFIT too. I don't understand how to use the routines once I have

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Page 4 of 9 ---- Generated from   comp.lang.idl-pvwave archive

downloaded the .pro files (new programer). Can't you point me to a resource that will help?

- Meg

Subject: Re: alternative to CURVEFIT function
Posted by Meg on Thu, 30 May 2013 19:09:20 GMT

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On Wednesday, May 29, 2013 9:39:08 PM UTC-4, Craig Markwardt wrote:
> On Wednesday, May 29, 2013 11:19:27 AM UTC-4, fd_...@mail.com wrote:
>
>> I was wondering if anyone knows an alternative function of CURVEFIT. If I am not mistaken the CURVEFIT uses the Levenberg-Marquart algorithm. I need to use a different algorithm which provides a numerical solution to the problem of minimising a function, generally non-linear.
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> Craig
>
>   http://cow.physics.wisc.edu/~craigm/idl/fitting.html

Hi,

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I'm trying to learn more about MPFIT too. I don't understand how to use the routines once I have downloaded the .pro files (new programer). I'm just not sure where to put the files so that IDL reads MPFITFUN as a routine and not a variable. Can you point me to a resource that will help?

- Meg

Subject: Re: alternative to CURVEFIT function
Posted by David Fanning on Thu, 30 May 2013 19:25:33 GMT
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Meg writes:

> I'm trying to learn more about MPFIT too. I don't understand how to use the routines once I have downloaded the .pro files (new programer). I'm just not sure where to put the files so that IDL reads MPFITFUN as a routine and not a variable. Can you point me to a resource that will help?

   http://www.idlcoyote.com/code_tips/installcoyote.php

It will also help if you stick this line of code at the beginning of the
program that contains the reference to MPFIT:

   compile_opt strictarr

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: alternative to CURVEFIT function
Posted by wlandsman on Thu, 30 May 2013 23:05:43 GMT
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On Thursday, May 30, 2013 2:47:59 PM UTC-4, rr...@stsci.edu wrote:
>
>
>
> BTW, Craig. What does MPFIT stand for? I mean, I can guess about what FIT is... But MP?

>

I'm guessing MP stands for MinPack -- http://www.netlib.org/minpack/ - which is the source of the original FORTRAN algorithms.   And I'm guessing that MinPack stands for minimization package. --Wayne

---

Subject: Re: alternative to CURVEFIT function
Posted by David Fanning on Thu, 30 May 2013 23:37:01 GMT
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wlandsman writes:

> On Thursday, May 30, 2013 2:47:59 PM UTC-4, rr...@stsci.edu wrote:
>>
>>
>>
>> BTW, Craig. What does MPFIT stand for? I mean, I can guess about what FIT is... But MP?
>>
>
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Doh, I had this all lined up for this years IDL Expert Programmer's
Association (IEPA) test question:

  http://www.idlcoyote.com/misc_tips/iepa_test.html

Back to the drawing board. :-(

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: alternative to CURVEFIT function
Posted by Craig Markwardt on Fri, 31 May 2013 04:48:34 GMT
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On Thursday, May 30, 2013 7:05:43 PM UTC-4, wlandsman wrote:

> On Thursday, May 30, 2013 2:47:59 PM UTC-4, rr...@stsci.edu wrote:
> I'm guessing MP stands for MinPack -- http://www.netlib.org/minpack/ - which is the source of the original FORTRAN algorithms.   And I'm guessing that MinPack stands for minimization package.   --Wayne

Ding ding! Right. You win a free MPfit MP3 player from the year 2000.

Craig

Subject: Re: alternative to CURVEFIT function
Posted by Craig Markwardt on Fri, 31 May 2013 04:56:56 GMT
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On Thursday, May 30, 2013 3:09:20 PM UTC-4, Meg wrote:
> On Wednesday, May 29, 2013 9:39:08 PM UTC-4, Craig Markwardt wrote:
>
> I'm trying to learn more about MPFIT too. I don't understand how to use the routines once I have downloaded the .pro files (new programer). I'm just not sure where to put the files so that IDL reads MPFITFUN as a routine and not a variable. Can you point me to a resource that will help?

David provides good installation advice.

Once you have MPFIT installed, then try going through my tutorial.
  http://cow.physics.wisc.edu/~craigm/idl/mpfittut.html

Craig

Subject: Re: alternative to CURVEFIT function
Posted by Russell Ryan on Fri, 31 May 2013 12:59:51 GMT
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On Friday, May 31, 2013 12:48:34 AM UTC-4, Craig Markwardt wrote:
> On Thursday, May 30, 2013 7:05:43 PM UTC-4, wlandsman wrote:
>
>> On Thursday, May 30, 2013 2:47:59 PM UTC-4, rr...@stsci.edu wrote:
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>
>
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> Ding ding! Right. You win a free MPfit MP3 player from the year 2000.
>
>

>
> Craig

GRRR... I should've been able to guess that....