
Subject: Re: mpcurvefit vs. a matlab fitting technique
Posted by [sheilakanani](#) on Tue, 22 Jul 2008 10:55:46 GMT
[View Forum Message](#) <> [Reply to Message](#)

> But if I change the input even slightly eg [9.4,0.24,0.77,-1.5]
> I get totally different values out, eg [7.7098139, 0.19333284,
> 0.60223838, -0.85758867]
>

Sorry, typo, this should read:

But if I change the input even slightly eg [9.44,0.24,0.77,-1.5]
I get totally different values out, eg [7.7098139, 0.19333284,
0.60223838, -0.85758867]

Subject: Re: mpcurvefit vs. a matlab fitting technique
Posted by [Vince Hradil](#) on Tue, 22 Jul 2008 13:12:47 GMT
[View Forum Message](#) <> [Reply to Message](#)

On Jul 22, 5:55 am, sheilakan...@googlemail.com wrote:

>> But if I change the input even slightly eg [9.4,0.24,0.77,-1.5]
>> I get totally different values out, eg [7.7098139, 0.19333284,
>> 0.60223838, -0.85758867]
>
> Sorry, typo, this should read:
>
> But if I change the input even slightly eg [9.44,0.24,0.77,-1.5]
> I get totally different values out, eg [7.7098139, 0.19333284,
> 0.60223838, -0.85758867]

I have found the mpfit routines to be quite good at minimizing square errors. There are a lot of "tweaks" one can use, such as step-size, to help the routines avoid local minima - take a look at the parinfo keyword.

I will also depend a lot on the equation that you are fitting. Perhaps the variables are slightly "mixed", or the numerical derivatives are ill-conditioned (is that the right term?). If possible, one can also use analytical derivatives with the mpfit functions, which might help.

Subject: Re: mpcurvefit vs. a matlab fitting technique
Posted by [R.G. Stockwell](#) on Tue, 22 Jul 2008 16:46:46 GMT
[View Forum Message](#) <> [Reply to Message](#)

<sheilakanani@gmail.com> wrote in message
news:117be385-ff64-4b09-9a74-7b053fe3ee31@m36g2000hse.google groups.com...
> Hi there,
>
> I am trying to run an IDL program using mpcurvefit. The same program
> was written in Matlab and used lsqcurvefit for the fitting. I am
> having some serious issues with mpcurvefit (although it is better than
> the IDL curvefit!) and was hoping you can help me resolve these
> issues.
>
> I put 4 coefficients into the fitting routine then mpcurvefit "spits"
> out the fitted values for these coefficients. However, the program is
> not stable at all. For example
>
> If I put [9.4,0.24,0.77,-1.5]
> into the routine
> I get [9.538911, 0.15903937, 0.72624838, -1.3497545] out.
>
> But if I change the input even slightly eg [9.4,0.24,0.77,-1.5]
> I get totally different values out, eg [7.7098139, 0.19333284,
> 0.60223838, -0.85758867]

What are the results with matlab for these two inputs?
And i'd also suggest doing about 100 other cases, for both IDL and matlab,
to get some measure of the stability of your systems.
Are both solutions iterating the same number of times, is one of
the algorithms hitting it maxint limit? what are the step sizes of the
iterations etc.

Use double precision everywhere)are there implicit floats in the idl
code?).

Since we don't know what you are fitting it is hard to say anything more.

Cheers,
bob

Subject: Re: mpcurvefit vs. a matlab fitting technique
Posted by [Craig Markwardt](#) on Thu, 24 Jul 2008 04:07:21 GMT
[View Forum Message](#) <> [Reply to Message](#)

sheilakanani@gmail.com writes:

```
>> But if I change the input even slightly eg [9.4,0.24,0.77,-1.5]
>> I get totally different values out, eg [7.7098139, 0.19333284,
>> 0.60223838, -0.85758867]
>>
```

>
> Sorry, typo, this should read:
>
> But if I change the input even slightly eg [9.44,0.24,0.77,-1.5]
> I get totally different values out, eg [7.7098139, 0.19333284,
> 0.60223838, -0.85758867]

This person also sent me a private email, which I
replied to. Here is what I wrote:

Without more information, I can offer only a few suggestions. First
of all, the different fit parameter sets you described *may* be a good
fit. MPFIT stops iterating when it achieves its tolerances, and can't
know how the previous fit did. If both are good fits, then that tells
you something about your model. Some other ideas about parameter
convergence are here:

<http://cow.physics.wisc.edu/~craigm/idl/fitqa.html#parstep>

It may be that you need to set PARINFO.STEP for some parameters.

Craig

--

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
