Subject: Re: faster minimization needed - maybe mpfit?
Posted by rogass on Mon, 26 Mar 2012 19:59:41 GMT
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On 26 Mrz., 21:04, Craig Markwardt <craig.markwa...@gmail.com> wrote:
> On Monday, March 26, 2012 9:15:30 AM UTC-4, chris wrote:
>> Hi folks,
>> the following expression runs successfully with AMOEBA but requires
>> for large matrices (columns < 512, rows up to 30000), for small
>> tolerances (e.g. ftol=1e-06) and a high number of iterations
>> (nmax>=10000) to converge years:
>
>> expr = total(abs(convol(im-rebin(p[*],size(im,/dim),/samp),
>> [-1.,0.,1.])))
>
>> where p is the parameter vector (one row) to be found and im is the
>> matrix.
>
>> Is there a way to do it faster? Maybe with mpfit (I don't get an idea
>> how...)
>
> If you can express your problem as minimize{TOTAL(RESID^2)}, then you can use MPFIT, where RESID is signed. In your case you can do this, but there's a few little tricks.
>
> Your problem looks like minimize{TOTAL(ABS(XXX))}.
>
> You might want to define RESID=SQRT(ABS(XXX)), and then in principle it looks like an MPFIT problem. Unfortunately you need to preserve the sign of XXX. So this is what you do:
> RESID = SIGN(XXX)*SQRT(ABS(XXX))
> where SIGN(XXX) is the sign of XXX (-1 or +1 depending on XXX).
>
> Happy equation solving...
> Craig

Hi Craig,
thank you. Nevertheless, I don't think that I understood what you
suggests. So, i tried this:

```
function test2,p,x=x,err=err
temp=convol(x,rebin(p[*],size(x,/dim)))
return,signum(temp)*sqrt(abs(temp))
end
```

But what I got is this:

```
ENVI> st={x:im}&help,mpfit('test2',functargs=st,maxiter=100)
<Expression>    DOUBLE    =              NaN
```

What's wrong?

Thank you

Chris