Subject: Re: constrained least-square fit
Posted by ROsborn on Fri, 08 Mar 1996 08:00:00 GMT

In article <4hq1qb$1f2e@itssrv1.ucsf.edu>, aki@itsa.ucsf.edu wrote:

> I am to do some modeling of data. The modelfunction I am using is nonlinear.
> Therefore I am looking for a Levenberg-Marquard type of optimization routine.
> However I need to apply constraints to the fit (it becomes unstable otherwise).
> so curvefit.pro provided by IDL doesn't do it.
>
> Is anyone aware of a general least-square fit that allows constraints
written in
> IDL?
> Any hints are appreciated,
>
> Andreas

You could always transform the constrained parameters into circular
coordinates before calling the procedure. This has the advantage of
ensuring that chi^2 varies smoothly at the parameter limits. It doesn't
always work but is a better compromise than putting an infinite barrier in
the chi^2 v p space.

To transform the parameters, use

pt = arcsin((2*p-pmax-pmin) / (pmax-pmin))

Then you can restore them again using

p = 0.5*(pmax+pmin) + 0.5*(pmax-pmin) * sin(pt)

Hope this helps.

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