Subject: Re: Non-linear optimization
Posted by Ken Kump on Tue, 12 Nov 1996 08:00:00 GMT
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Howard Onishi wrote:
> Does anyone know of a source for non-linear optimization codes (in IDL
> of course)? I am particularly interested in image restoration
> techniques such as maximum entropy deconvolution. The problem size is
> on the order of several hundred variables.

Howard,

Someone from the Naval Research Lab wrote a program called superfit.pro, some years ago. It did a generalized non-linear least-squares fit to a user-supplied function. This worked for me, but was quite slow. I have found that for computationally intensive optimization, it is *much* faster to use a call_external, especially if you are talking about several hundred variables. I have used NL2SOL, a FORTRAN-based procedure which is quite flexible and quite well documented. It can be found at http://netlib.bell-labs.com. I have also used the Powell-method (Numerical Recipies) in a similar fashion. Good luck.

Ken Kump

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Subject: Re: Non-linear optimization
Posted by Craig Markwardt on Tue, 12 Nov 1996 08:00:00 GMT
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hto@kaiwan.com (Howard Onishi) writes:
>
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> of course)? I am particularly interested in image restoration
> techniques such as maximum entropy deconvolution. The problem size is
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> Thanks,
> Howard Onishi

You might try an interesting new technique based on "pixons".
Dr. R. Puetter developed this technique primarily for deconvolution of astronomical images, but you should be able to apply it to most

problems. His webpage:

http://cassfos01.ucsd.edu:8080/puetter.html

has references to the IDL source code as well as published articles which you can download and read. The technique is iterative, a portion of which is the standard maximum likelihood deconvolution. You could probably strip this part out if you wanted to.

There are some restrictions for non-scientific use.

Best luck,
Craig

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Craig Markwardt UW-Madison 608 262 1164 | "To cogitate and
internet: craigm@astrog.physics.wisc.edu | to solve ..." -MathNet
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