Subject: Re: Help with Search Algorithm
Posted by velt on Mon, 22 Aug 1994 19:40:43 GMT
View Forum Message <> Reply to Message

In article s4d@usenet.INS.CWRU.Edu, kump@morph.ebme.cwru.edu (Kenneth S. Kump) writes:
> I have an arbitrary function, "funct", which is has 4 parameters.
> I have input, "x" and output, "y". I would like to use a method
> to search for the optimal 4 parameters. I found NR_DFPMIN, but
> my function is quite complex and I cannot calculate analytical partial
> derivatives. I also found SVDFIT which is supposed to work for
> polynomials, but will also take arbitrary functions--I have tried to use
> this, but it keeps crashing IDL. RSI says consult manual, and I cannot
> find info on user-supplied functions.
>
> If you know of another function (such as in NR, simplex method), or
> can help me with SVDFIT or DFPMIN, I'd appreciate it.

I have used curvefit from the IDL users library, but I think you can use
NR_DFPMIN just as well. If you can't calculate the gradient analytically,
calculate it numerically:

gradient = 1/delta * (Funct(x+delta) - Funct(x))

You can calculate the partial derivatives for each variable this way.
Choose a delta that is small compared to the distance over which Funct varies
with x (the analytical gradient is the limit for delta -> 0).

Good Luck.

Robert Velthuizen,
Digital Medical Imaging Program of the
H. Lee Moffitt Cancer Center and Research Institute at the
University of South Florida.