
Subject: Re: Any 1D functional minimization routines out there?

Posted by [geomagic](#) on Thu, 06 Apr 1995 07:00:00 GMT

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In article <DAFT.95Apr4133459@debussy.crd.ge.com> daft@debussy.crd.ge.com (Chris Daft) writes:

dan> You might try FX_ROOT. It uses Muellers method.
dan> Dan (I speak for no organization) O'Connell

> Thanks for your post. I checked out Muller's method in the IDL docs
> and I understand what it does. I wonder if you, or someone else more
> versed in numerical analysis than I, could comment on this:
>
> Obviously, I can minimize my function by forming its derivative and
> root finding. But my function is not analytic and I am not keen on
> doing numerical differencing (because this is ill-conditioned, I
> imagine). Is there a deeper link between root finding and
> minimization which I am missing?

Muller's method does not require the evaluation of the function's derivative and is global in the sense that the user need not supply an initial approximation (in the IDL version you need to provide 3 non-equal numbers as the "initial guess" to get the routine started).

> If not, I guess I'll translate some C routines into IDL (I can't
> CALL_EXTERNAL, for another unrelated reason). But this will be slooow
> (loops) unless I spend a long time on it.

Try FX_ROOT first, it might be fine and it's easy to do. A more general Muller's method algorithm can be found in, Conte and de Boor's elementary numerical analysis textbook. It does root deflation, so it can return all possible roots.

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"We do custom earthquakes (for food)"

or

"Just more roadkill on the information superhighway"



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