

Re: time-series smoothing

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In article <4239ACF1.55B96907@ever.com>, Jake <wh@ever.com> writes
>I have a problem of an apparent cross-disciplinary nature so I hope that
>justifies the cross-posting.

>

(trimmed)

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>2] Would it make sense to use Nelder-Mead (downhill simplex) method for
>minimizing, even though this problem seems to be a constrained
>optimization? There are three parameters, all constrained to positive
>values and one constrained to integer values, so differentiation doesn't
>seem to be an option. Is there a better derivative-free optimizer for
>this problem? Is there a differentiation method that would work better,
>even for a function that is only partially differentiable?

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I note that the Nelder-Mead algorithm is mentioned in Numerical Recipes to need restarting in practice and is now known to sometimes fail to converge (google on Nelder simplex counter-example yields e.g. <http://portal.acm.org/citation.cfm?id=589108>: the body of the text requires a subscription, but the abstract is accessible to all). Torczon has provided a variety of convergence proofs for direct search algorithms, one of which looks like a variant of the Nelder-Mead algorithm: googling on Torczon Simplex yields <http://www.cs.wm.edu/~va/research/>, which includes a paper "On the convergence of the multidirectional search algorithm".

Are these methods destined to replace Nelder-Mead? Nice Theoretical curiosities? Something in between?

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