Subject: Re: curve fitting: works badly?
Posted by swalton on Tue, 14 Mar 1995 19:16:03 GMT
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I just peeked in here and saw a discussion of one of my recent favorite topics, nonlinear least squares. (We have IDL, but I haven't learned it yet; my brain is full :-) ).

I've been using the routine variously known as NL2SOL or N2G. It is described in ACM Trans. Math. Software, Vol. 9, PP. 369-383 (An Adaptive Nonlinear Least-Squares Algorithm, By J.E. Dennis, D.M. Gay, and R.E. Welsch). They are available by anonymous FTP from netlib.att.com in the freely distributable subset of the AT&T PORT library. It comes in several versions, including one which can bound the fit parameters and versions which calculate the derivatives numerically. The precise details of the algorithm escape me at the moment, but I'm using it to fit an 11-parameter (!) model to some solar data. Highly recommended.

As to errors: a recent article in Computers in Physics compared a couple of different techniques for estimating the errors in a fit, and concluded that Monte Carlo techniques give the best estimate.
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"Be careful what you wish for; you might get it." swalton@csun.edu