Subject: bug in GAUSS2DFIT
Posted by Richard G. French on Wed, 09 Jul 1997 07:00:00 GMT
View Forum Message <> Reply to Message

I'd like to report a bug in GAUSS2DFIT, which is part of the standard library in IDL5.0
but which may have been around earlier in some form. It is a routine to fit a 2-D
gaussian, including an aribitrary orientation of the axes of the gaussian. The error is
in the sign of the partial derivative with respect to the tilt angle, theta, which defines
the orientation of the axes. In GAUSS2DFIT.PRO, there should be a minus sign in
front of the expression for pder[0,6] in line 73 of the routine. I confirmed this both
numerically and using Mathematica. As it turns out, this error does not show up when
you use GAUSS2DFIT directly, since it is written in a mode that uses numerical
derivatives instead of analytic derivatives. Perhaps this is because RSI realized that
the analytic derivatives did not work! If you want to test the feature, try a fit with
A[6] set to a non-zero initial value, use /TILT, and edit GAUSS2DFIT.PRO to
omit the /NODERIVATIVE keyword in the call to curvefit near the end of the program.
The fit will not converge to the correct value of theta. If you then change the sign
of pder[0,6] as indicated above, the fit will converge correctly.
    By the way, there is a nice feature in LMFIT that lets you specify which parameters you would like to fit and which you would like to keep fixed. It is the FITA keyword. I've
implemented a similar feature into my highly modified version of CURVEFIT, and I
hope that RSI will modify curvefit to do the same thing.

Dick French
rfrench@ahab.wellesley.edu