Sherpa enables the user to construct complex models from simple definitions and fit those models to data; optimization methods and fit statistics are used to characterize the results.

Sherpa can be run from the command line or imported as a Python module. Both options allow users to write their own analysis scripts in Python.

Support for the S-Lang language has been removed from Sherpa as of the CIAO 4.2 version 2 release. Submit your old save files or scripts to cxchelp@cfa.harvard.edu and we will update them for you.

What you can do with Sherpa:
• fit 1D data: spectra, surface brightness profiles, light curves, general ASCII arrays
• fit 2D images/surfaces in the Poisson/Gaussian regime
• fit data iteratively with the Primini and sigma-rejection methods
• access the internal data arrays
• build complex models with convolved and unconvolved components
• define XSpec-style additive and multiplicative table models
• select appropriate statistics for modeling Poisson or Gaussian data
• visualize a parameter space with simulations or by using 1D/2D cuts of the parameter space
• calculate confidence levels on the best-fit model parameters
• choose a robust optimization method for the fit: Levenberg-Marquardt, Nelder-Mead Simplex or Monte Carlo/Differential Evolution

A full list of features in Sherpa 4.3 is available online: http://cxc.harvard.edu/sherpa/updates.html