TableCurve 3.0

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TableCurve 3.0[1] is an excellent fitting program for two-dimensional data. It includes a powerful graphical interface which allows one to manipulate the data in many ways with the click of a few keys. This coupled with excellent support of other packages file formats would make it a solid choice for any researcher who performs curve fitting on a regular basis.

For starters, the installation program was refreshingly easy. It quizzed me for all of the necessary setup parameters and booted up with no problems. I generally like to take off with programs without doing the tutorials, just to get a feel for the "user friendliness" of the program. It brought in some data I had in a Lotus .WK3 file, and I was trying different plots almost immediately. It was not too long before I was lost in a couple of graphs trying to decide whether a point should be discarded.

The tutorials are very nicely put together, and the figures in the manual generally match those found on the screen. The only problem is that the tutorial spends a good bit of time talking about *possible* routes to take and what you might find. This left me wheeling through the manual to try to figure out what I need to do to undo the last three things I did. I ended up just restarting the program and the tutorial. Once I stuck to the options the tutorial told me to select, I was led through a maze of graphs and fits which detailed much of the programs capabilities without a hitch.

There are many features which impressed me, but the ability to quickly page through different functions fitting the same data and to quickly explore the boundary regions is nice. The program supports many different graphical models, and the VGA graphs which came up were excellent. Using a mouse, one can quickly zoom in on different regions of the data to get further details on the quality of the fit. It will show the areas of low confidence by shades on the graph and will allow you to click through the 90, 95, and 99% intervals without having to go back and modify the defaults.

But what of the curve fitting itself? TableCurve's 3304 linear equations and 16 nonlinear functions allow one to find the fitting equation of just about every set of data. In addition, it allows the addition of user-defined functions (I did not venture into this feature), if a function you are interested in (linear or nonlinear) is not in the set. The manual contains an excellent description of each set of equations contained in the program. With the click of the mouse, one can select the functions desired, the fitting mechanism (including Gaussian elimination, LU decomposition, and Singular value decomposition), and the sorting criteria for the fits. The fit itself can take a considerable amount of time especially if a coprocessor is not available. On my 25MHz 386 without a coprocessor, fitting all of the equations for less than 30 points took several minutes. Though I was not able to test it, the manual claims that a coprocessor will speed this up dramatically. It is filled with charts comparing calculation times on various machines (using what it calls a *F*loating *P*oint *I*ndex), including a description of each of the internal functions (such as SQRT, LOG, EXP) and their computational efficiency in different configurations.

Once the fit was completed, TableCurve ranked the equations by the method selected. It allows you to scroll through the equations or to jump to the nearest equation in a certain group. Once you have the equation(s) you wish to view, you can bring the graph(s) up and it is time to play. All of the review mechanisms mentioned above, plus many, many more are just a click away. The nicest is the ability to zoom in on a portion of the data by drawing a window with the mouse.

TableCurve outputs to just about every conceivable device from postscript printers to my little Panasonic KX-P1180. It nicely rotates the graphs so that they fill the entire page. It will also output the function as a FORTRAN, C, or PASCAL subroutine/function or output an entire program, which will allow you to compute and view the function if the proper libraries are available. The coefficients are all output to 16 significant figures in preparation for calculations involving double precision.

Even after many hours of moving through graph after graph, it was difficult to look at all of the capabilities of the program. It was clear that the program offered more than what most researchers would need in terms of input, output, fitting, and graphical review but had covered the breadth of their customers requests for additional functionality. An excellent manual accompanied the software, and I never had a reason to test their toll-free support number. I highly recommend that anyone who is in the market for a curve-fitting program take a serious look at TableCurve 3.0.

REFERENCES AND NOTES

(1) TableCurve is produced by Jandel Scientific, 65 Koch Road, Corte Madera, CA 94925, (800)874-1888, (415)924-8640. The catalogue price of the program is $495.00.