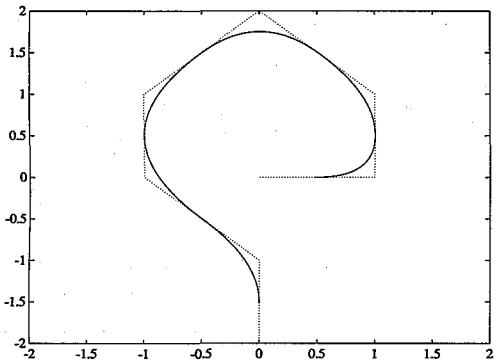
MATLAB™ NUMERIC COMPUTATION SYSTEM

Introducing Two New Toolboxes from The MathWorks

THE SPLINE TOOLBOX

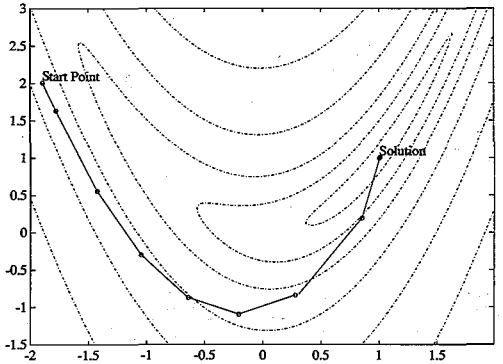
From Dr. Carl de Boor, author of *A Practical Guide to Splines* (Applied Math. Sciences Vol. 27, Springer Verlag, 1978) comes the **Spline Toolbox,** a collection of MATLAB routines for the construction and manipulation of piecewise polynomial functions. Over 40 routines are included for working with pp-form and B-form splines, the two most commonly used spline representations. The Spline Toolbox offers extensive datafitting and modelling capabilities that enable users to model curves, pass curves through data, solve functional equations, and do functional approximation.



A spline curve of order 3 and its control polygon

THE OPTIMIZATION TOOLBOX

The **Optimization Toolbox** is a collection of MATLAB routines for linear programming and general optimization of linear and nonlinear functions. The Optimization Toolbox combines with MATLAB to create an ideal environment for setting up and solving optimization problems, in order to improve cost, reliability, and performance in a wide variety of applications. Optimization functions include constrained minimization, multi-objective optimization, nonlinear least squares, and quadratic programming. Numerous demonstration routines are also included.



Optimization plot of Rosenbrock's function

The MATLAB Community Grows

Six years ago, the MATLAB numeric computation system was introduced as a method of providing interactive access to the state-of-the-art linear algebra and matrix algorithms from LINPACK and EISPACK. The goal of MATLAB was to enable mathematicians, scientists and engineers to use matrix-based techniques to solve problems without having to program in traditional languages like C and Fortran.

Today, MATLAB has achieved a status in commercial, academic, and government research environments throughout the world as a standard teaching and research tool for a wide range of applications—anywhere that numeric computation and graphical analysis can be utilized to solve numeric problems. MATLAB has been called the "*lingua franca* for the exchange of software and algorithms, rapidly displacing Fortran from that position" due to its unique interactive interface, reliable algorithmic foundation, fully extensible environment, and computational speed. The MATLAB community continues to grow, with new application areas constantly being realized as more scientists, engineers, faculty, and students in mathematical, scientific and engineering disciplines discover the breadth of MATLAB's capabilities.

MATLAB's underlying programming environment has spawned numerous MATLAB *Toolboxes*—sets of routines written in the MATLAB programming language for specialized applications. Authored by renowned experts in their respective fields, these Toolboxes represent cutting-edge theory and algorithms, offering users access to the latest advances in their respective fields. Toolboxes transform MATLAB from a general-purpose numeric computation system into a customized productivity tool for areas such as signal processing, control system design, parametric modelling, and the applications featured above.

To find out how you can become part of the MATLAB community, please contact The MathWorks at:

The MATH WORKS Inc.

Cochituate Place
24 Prime Park Way
Natick, MA 01760
Tel. (508) 653-1415
Fax (508) 653-2997
email: info@mathworks.com