

The next technology advance in data mining has arrived! Introducing MARS™ software, an innovative flexible modeling tool brought to you by the developers of CART®.

The time consuming, trial-and-error process of building accurate predictive models is history. MARS excels at automatically finding optimal variable transformations and interactions, the complex data structure that often hides in high-dimensional data. In doing so, this new-generation approach to regression modeling effectively uncovers business-critical data patterns and relationships that are difficult, if not impossible, for other approaches to uncover.

Given a target variable and a set of candidate predictor variables, MARS automates all aspects of model development, including:

- separating relevant from irrelevant predictor variables,
- transforming predictor variables exhibiting a nonlinear relationship with the target variable,
- determining interactions between predictor variables,
- handling missing values with new nested variable techniques, and
- conducting extensive self-tests to protect against overfitting.

MARS enables analysts to rapidly search through all possible models and to quickly identify the optimal solution. MARS provides insights that can lead to a definitive competitive advantage.

And, because the software can be exploited via intelligent default settings, for the first time analysts at all levels can easily access MARS' innovations.



ABOUT SALFORD SYSTEMS

Salford Systems is an award winning data mining software development and consulting company with a proven record of technical and practical excellence. In 2003 we won the Duke/Teradata Churn modeling competition beating all other entrants in all four award categories. In 2000 we won the KDD2000 data mining competition sponsored by the Association for Computing Machinery (ACM) beating every major data mining software developer in 2 out of 5 categories (including most accurate models). In 1999 we were awarded Japan's Nikkei Prize for demonstrated excellence applying CART to quality control problems.

We have been developing advanced analytical software since 1983, and data mining software since 1990. Working closely with the world's leading data miners at UC Berkley, Stanford University, we are committed to delivering best-of-breed state-of-the-art methodology embedded in first class user assisting environments.

Salford Systems also provides training and consultancy in all phases of data mining and offers an ongoing series of data mining training seminars in the US, Europe, Asia, and Australia.



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The next frontier
in data mining...

MARS®

a completely
new modeling tool
for knowledge
discovery

Automated regression
and logistic regression

"For years, I have been predicting that MARS would be one of the next hottest algorithms and it will be. MARS addresses some of the shortcomings of decision trees and does so in a fairly elegant fashion."

Herb Edelstein, President, Two Crows Data Mining Consultancy

"MARS is in most cases both more accurate and much faster than neural networks."

De Veaux, et al., *Computers chem. Engng*, Vol 17, No. 8

Features

Benefits

Scientific Pedigree

Based on the original code by Jerry Friedman, one of CART's developers; code now substantially enhanced with new features and capabilities

Automated variable search

Searches large number of candidate predictor variables, separating relevant from irrelevant predictors

Automated variable transformations

Determines the optimal functional form (in the form of spline basis functions) for predictor variables

Automated interaction searches

Finds significant two-way and higher-order interactions between predictor variables

Missing value handling

Handles missing values with new nested variable techniques

Built-in model validation

Safeguards against overfitting using cross validation or a randomly-selected test dataset

Simplified model deployment

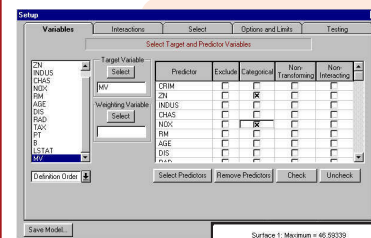
Scores new data directly or via automatically-generated C or SAS® executable programming statements; exportable spline code can also be used to generate transformed variables and interaction terms

GUI and Command-Line Interfaces

Intuitive point-and-click interface as well as optional command-line control for batch processing

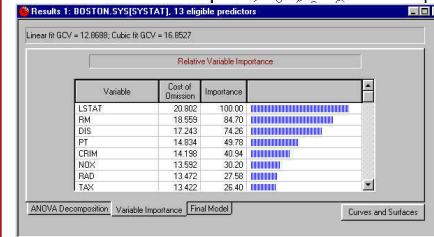
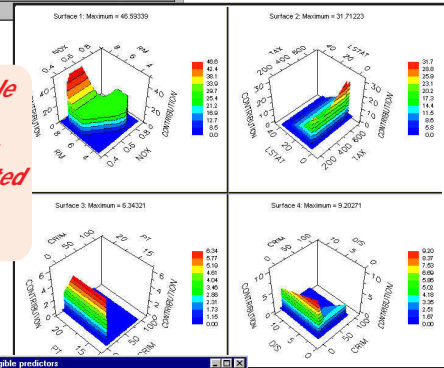
Automated Modeld

Accelerates development of both linear and logistic regression models



The primary control center, the Model Setup dialog, offers convenient access to all commonly-used analysis functions.

Detected variable transformations and interactions are communicated graphically as 2- and 3-D plots.



To aid with interpreting the final model, MARS provides conventional regression, ANOVA decomposition, and variable importance output.

Data Formats

The MARS data-translation engine supports data conversion from over 80 file formats, including:

- Statistical analysis packages-SAS® and SPSS
- Databases-Oracle and Informix
- Spreadsheets-Microsoft Excel and Lotus

System Requirements

- Pentium I or better
- 64 MB RAM (128 MB+ recommended)
- 20 MB free disk space (to install)
- Also available for Unix & Linux platforms

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MULTIVARIATE ADAPTIVE REGRESSION SPLINES

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