

Minitab – SALFORD PREDICTIVE MODELER (SPM)

Salford Predictive Modeler® 8 General Features:

- **Modeling Engine:** CART® decision trees
- **Modeling Engine:** TreeNet® gradient boosting
- **Modeling Engine:** Random Forests® tree ensemble
- **Modeling Engine:** MARS® nonlinear regression splines
- **Modeling Engine:** GPS regularized regression (LASSO, Elastic Net, Ridge, etc.)
- **Modeling Engine:** RuleLearner, incorporating TreeNet's accuracy plus the interpretability of regression
- **Modeling Engine:** ISLE model compression
- 70+ pre-packaged automation routines for enhanced model building and experimentation
- Tools to relieve gruntwork, allowing the analyst to focus on the creative aspects of model development.
- Open Minitab Worksheet (.MTW) functionality

CART® Features:

- Hotspot detection to discover the most important parts of the tree and the corresponding tree rules
- Variable importance measures to understand the most important variables in the tree
- Deploy the model and generate predictions in real-time or otherwise
- User defined splits at any point in the tree
- Differential lift (also called “uplift” or “incremental response”) modeling for assessing the efficacy of a treatment
- Automation tools for model tuning and other experiments including
 - Automatic recursive feature elimination for advanced variable selection
 - Experiment with the prior probabilities to obtain a model that achieves better accuracy rates for the more important class
 - Perform repeated cross validation
 - Build CART models on bootstrap samples
 - Build two linked models, where the first one predicts a binary event while the second one predicts a numeric value. For example, predicting whether someone will buy and how much they will spend.
 - Discover the impact of different learning and testing partitions

MARS® Features:

- Graphically understand how variables affect the model response
- Determine the importance of a variable or set of interacting variables
- Deploy the model and generate predictions in real-time or otherwise
- Automation tools for model tuning and other experiments including
 - Automatic recursive feature elimination for advanced variable selection
 - Automatically assess the impact of allowing interactions in the model
 - Easily find the best minimum span value
 - Perform repeated cross validation
 - Discover the impact of different learning and testing partitions

TreeNet® Features:

- Graphically understand how variables affect the model response with partial dependency plots
- Regression loss functions: least squares, least absolute deviation, quantile, Huber-M, Cox survival, Gamma, Negative Binomial, Poisson, and Tweedie
- Classification loss functions: binary or multinomial
- Differential lift (also called “uplift” or “incremental response”) modeling
- Column subsampling to improve model performance and speed up the runtime.
- Regularized Gradient Boosting (RGPIOOST) to increase accuracy.
- RuleLearner: build interpretable regression models by combining TreeNet gradient boosting and regularized regression (LASSO, Elastic Net, Ridge etc.)
- ISLE: Build smaller, more efficient gradient boosting models using regularized regression (LASSO, Elastic Net, Ridge, etc.)
- Variable Interaction Discovery Control
 - Determine definitively whether or not interactions of any degree need to be included
 - Control the interactions allowed or disallowed in the model with Minitab’s patented interaction control language
- Discover the most important interactions in the model
- Calibration tools for rare-event modeling
- Automation tools for model tuning and other experiments including
 - Automatic recursive feature elimination for advanced variable selection
 - Experiment with different learn rates automatically
 - Control the extent of interactions occurring in the model
 - Build two linked models, where the first one predicts a binary event while the second one predicts a numeric value. For example, predicting whether someone will buy and how much they will spend.
 - Find the best parameters in your regularized gradient boosting model
 - Perform a stochastic search for the core gradient boosting parameters
 - Discover the impact of different learning and testing partitions