Engineer optimized systems of segmented predictive models

Optimized segmentation results in marked improvement in the precision of your predictive models. Modelers can now leverage Fair Isaac’s innovative Adaptive Random Trees (ART) technology for creating systems of segmented models that predict outcomes with the greatest precision possible. Rooted in advances in genetic algorithms, the Segmentation ART™ module automates the process of intelligently searching a few thousand combinations of segmentations and models to find the best segmented model system—while also providing collaboration tools for delegating segment-level model development across your team.

Since 1956, Fair Isaac has supplied credit issuers with proven solutions that automate smarter decisions across mission-critical applications. Today, organizations in any industry can empower their own applications to make more profitable decisions using the same technology that Fair Isaac uses to develop its solutions.

Segmentation ART™ module, now available as an optional module for the Model Builder platform, allows analytic teams to access Fair Isaac’s sophisticated technology to bypass the tedious and formerly manual process of finding effective segmentation schemes. Segmentation ART technology leverages the capabilities of Model Builder for importing data, visualizing and exploring predictive patterns, defining predictive variables, creating models, evaluating their quality, and swiftly deploying predictive analytics.

By automating the process of identifying optimized segmentations, Segmentation ART technology delivers substantial benefits to your model development process. The Segmentation ART module allows you to:

- **Boost the precision of your models.**
  Realize the bottom-line benefits of optimally tuned segmented model systems on nearly every modeling project.

- **Enhance the speed of the model development process.**
  Automating key steps dramatically reduces the time to develop effective segmented model systems.

- **Improve efficiency and reduce costs.**
  The ART process usually results in trees that have fewer leaves than manually created trees, often reducing the number of models required, and thus dramatically cutting development, deployment and maintenance costs.

Automate the discovery of predictive segments

Designed by seasoned modelers, the Segmentation ART module overcomes the challenges that have made segmented model systems impractical for many analytic development projects.

Traditionally, analysts build candidate segmentation trees using technologies such as classification and regression trees, then manually develop models for each sub-population, and finally write custom logic...
to construct the system and evaluate performance. Most projects, however, do not have the budget or timeline to allow for this type of analysis. The result is that only a handful of candidate schemes can usually be considered for segmented analysis—leading to sub-optimal results.

The Segmentation ART™ module takes advantage of cutting-edge genetic algorithm techniques to search a vast space of potential segmentation trees and models to identify optimized segmented model systems. The process begins with a population of randomly generated trees that is evaluated for performance and then evolves into improved generations through genetic operations such as fitness-proportionate selection, cross-over and random mutation.

**Combine advanced science with business expertise**

As with our Scorecard module for Model Builder, the Segmentation ART module doesn’t force you to sacrifice competitive business expertise to a completely automated process. Segmentation ART technology allows you to have the best of both worlds. You gain both the increased efficiency of automation and the flexibility to address the practical issues of the scorecard development process.

The Segmentation ART module for Model Builder provides capabilities for:

- Automatically ranking the performance of each segmented model system in terms of divergence
- Visualizing and quickly navigating segmentation trees
- Enabling business experts to edit trees to infuse domain knowledge or add splits that are required by the business process
- Enabling power users to tune every aspect of the genetic search

**Streamline the model development process**

The Segmentation ART module for Model Builder enables you to:

- Delegate the tuning of models for each segment by automating the creation of template projects and datasets for your team members.
- Swiftly create interpretable and precise scorecard models for each segment or choose from a variety of other models such as neural networks.
- Collect finalized models from your team and easily assemble a segmented model system for scoring, evaluation and swift deployment.
- Automatically generate a proven set of evaluation reports to examine system and model performance.

**Global lender improves profit by 26%**

A global lender wanted to improve its bottom line by reducing its bad debt rates. Fair Isaac applied Segmentation ART technology to the lender’s model development process. The result was a new system of segmented scorecards designed to achieve maximum precision in predicting delinquency and default behavior. The lender projects a 26% profit increase—or $440k per 100k new applicants—to its portfolio. This approach is also projected to yield a significant 8.5% profit improvement over the lender’s old approach of manually designing a segmented model system branch-by-branch.

- Standardize score interpretation across the enterprise by applying scaling factors at the model level or across the entire segmented model system. Easily incorporate models from previous developments that may have different score scaling alignment parameters.

With the Segmentation ART module for Model Builder, organizations can realize new levels of profitability from their data-driven decision systems.

**ENTERPRISE DECISION MANAGEMENT**

Segmentation ART™ module is part of Fair Isaac’s suite of Enterprise Decision Management solutions that automate, improve and connect decisions to enhance business performance. Learn more at www.fairisaac.com/edm.

**Fair Isaac Corporation** (NYSE:FIC) combines trusted advice, world-class analytics and innovative applications to help businesses make smarter decisions.