



WORKSHOP 3:

Fraud Detection And Quality Enhancement Via Text Mining And Data Mining

Presenters:

S. Ananyan, CEO, Megaputer Intelligence

V. Kozyrkov, President, Aculocity

Workshop Overview:

During the economy downturn, manufacturers are seeking extra ways to cut cost and increase the effectiveness of their warranty and quality programs. This workshop demonstrates the results of a real fraud detection and engineering quality enhancement project based on the data and text mining of the product warranty and repair data from an automotive manufacturer. We outline the challenges the manufacturer was facing, and discuss the data, analysis methodology, obtained results, and their business value.

Workshop Details:

Manufacturers often have to rely on broad networks of service representatives to perform repairs on complex products. An intelligent use of large amounts of repair and warranty data received back from service representatives can help manufacturers streamline various aspects of their operations. This workshop discusses how text and data mining can derive valuable insights from:

- 1) Warranty data - to enable manufacturer to detect and prevent fraud**
- 2) Product Repair data - to determine root causes of problems and enhance product quality**

Receiving dozens of thousands of warranty claims, manufacturers need the ability to quickly differentiate between valid claims to be covered and potential fraud attempts. The data itself can hold the key for detecting anomalous claims. While detailed manual investigation of every piece of information might not be practical, an automated solution based on a combination of data and text mining techniques can determine typical repair patterns, detect anomalous claims, and highlight problems discovered in each anomalous claim. Implementing an automated fraud detection solution helps manufacturers eliminate fraud and thus reduce the overall cost of warranty claims.

When applied to all product repair data, warranty-related or not, the data and text mining solution can identify typical product repair patterns associated with the product use and reveal anomalous repair patterns. Juxtaposing the discovered anomalies with the used parts, suppliers, and production time, the solution helps manufacturers determine potential root causes of the discovered anomalous repair patterns. This facilitates the delivery of systemic fixes to the identified problems, thus enhancing product quality.

The workshop attendees will learn how to accomplish the following tasks:

- 1. Use data and text mining to detect anomalous warranty claims.**
- 2. Extract the real repair history of the product through the simultaneous analysis of structured and textual data.**
- 3. Identify typical and anomalous product repair histories.**
- 4. Discover possible root causes of anomalous product repairs.**

Who Should Attend

This workshop is designed for people interested in automated tools for warranty fraud detection and product quality enhancement. The presented material will be of interest to warranty, quality, and product managers, corporate executives, and other decision makers.

The target audience for this workshop includes:

- Warranty Directors/Managers**
- Quality Director/Managers**
- Product Managers**

While we discuss an example taken from the automotive manufacturing industry, the presented methodology, challenges and solutions are directly applicable to the analysis of warranty and repair data of any product manufacturer using a network of service representatives. Attendees from the following industries are specially invited:

- Automotive**
- Equipment**
- Aerospace**
- Electronics**
- Appliances**
- Computer Hardware**
- Computer Software**

Learning Points

Participants will learn the following:

- The basics of data and text mining**
- Data elements necessary for fraud detection and quality enhancement analysis**
- Warranty fraud detection methodology and results**
- Repair data analysis methodology and results**
- Real world case study from the automotive industry**