Abstract

ASTIN WORKING PARTY ON
DATA ANALYTICS - PHASE 2
BIG DATA APPLICATIONS

Background

Analyzing Data is a big part of today’s Actuarial skillsets. As technology advances to handle even larger amounts of data so too must the Actuary’s skills. To assist with this process the AWP on Data Analytics was created. The working party produced a paper that outlined the current Big Data trends and references to where useful information on Big Data can be found. The WP sparked such great interest in the area that a Phase 2 of the work has been created to introduce the profession to Big Data Applications. The Phase 2 Working Party paper describes their methods and results.

Phase 2 Predictive Modeling

We have chosen to focus on one topic, Predictive Modeling for Phase 2. Phase 2 has a focus on hands-on applications. Because of the focus on applications, the working party work emphasizes applications and examples using publically available databases and downloadable code. Software used includes Excel and R.

Members of the Working Party identified an insurance database from a 2000 modeling competition. The data set was distributed and is being used by the Working Party members for their modeling work.

The following are methods that the working party intends to cover:

- Exploratory data analysis/Data Visualization
- Unsupervised Learning (Principal Components and Clustering)
- MARS (Multivariate Adaptive Regression Splines)
- Trees
- Ensemble models
• Deep learning neural networks

AWP Data Analytics – Phase 2 Current Members

• Louise Francis (champion for working party)
• Syed Danish Ali
• Martin Ellingsworth
• Fumihiro Endo
• Mary Jo Kannon
• Elana KulinskayaH
• Hidemasa Oda
• Axel Wolfstein