Article from

Predictive Analytics and Futurism

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From the Editor: PAF Newsletter—The Source Library for Your Predictive Analytics Needs—For You, and by You!

By Dave Snell

This September, we had another successful Predictive Analytics Symposium for the Society of Actuaries (SOA); and I was honored to welcome about 200 actuaries, data scientists, and insurance professionals to a highly popular assortment of sessions directed specifically for actuaries (often taught by actuaries). My co-chair, Xiaojie (Jane) Wang will carry this onwards next year for you.

One of the most frequently asked questions, by far, from the attendees was along the lines of the following: "Where can I go to get more great information like this on predictive analytics? I want something that will help me navigate the learning curve; but I do not have the time to wade through highly academic literature that might require semesters or years of background reading; and I want something more useful than the pablum and hyperbole of a news media article."

Fortunately, the answer was an easy and satisfying one: In addition to the various SOA-sponsored meetings, courses, and symposia, go to the *SOA.org* website, click on Professional Sections, then Predictive Analytics & Futurism, then Newsletter, and then scroll down to the PAF Article Compilation Excel workbook, and download it. Nick Hanewinckel has been keeping this current for us and it has become a wonderful reference source for actuaries and kindred spirits.

The workbook contains over 200 article summaries that you can search through by issue, date, title, author, actuarial specialty, or even the text of the summary. These range from statistical significance, through Delphi studies, feature selection, supervised and unsupervised methods, generalized linear models (GLMs), neural networks, genetic algorithms, etc., with understandable descriptions of the concepts and practical actuarial examples of the usage. For example, neural networks articles (a very hot topic in machine learning) range from the basics, through generative adversarial networks (GANs), and Neuroevolution of Augmenting Topologies (NEAT). The articles are often accompanied by links to code (in Python, R, Julia, RePast, Cython, Excel, …) that you can download and run and modify for your own applications. When you find an article of interest, you can hyperlink directly to it. And for those of you (or us) that are not even sure what technique you want to learn about, there are plenty of useful guidance articles. Mary Pat Campbell and Michael Niemerg have crafted very useful evaluations of courses and books in past issues to help you plan your own career map. And Nathan Pohle continues the helpful recommendations in a digital article later this month (see note on format change below).

Personally, as editor of the printed edition for the past 11 years, I feel like I may have benefited the most from this treasure trove of knowledge. In the graduate artificial intelligence (AI) machine learning (ML) course I teach, I frequently provide links to supplementary perspectives and explanations of the concepts I am teaching. I know that my students will not be intimidated by reams of formulas to better understand a current technique. Also, I can comfortably recommend (or even assign) these articles because they have been vetted and tested and applied by peers in the actuarial community. This editorial cannot individually thank the many authors (over 50 of you) who have contributed your time and expertise; but I want to give a big thanks to you collectively for authoring such interesting and enlightening articles.

Starting in early 2020, the PAF newsletter will discontinue paper issues, and move on to an all-digital publication format. The digital edition will published every other month, so you

won't have to wait as long between issues. We hope this results in an ability to provide even more value to you.

This issue adds to the collection:

- **Chairperson's Corner: Change is constant—by Eileen S. Burns**

  - Eileen gives us a whirlwind summary of the last three years of our section. Reading through her article you can appreciate why it is the fastest growing section of the Society of Actuaries. We accomplished an impressive collection of new initiatives and started several more … too many to summarize here, so read her Chairperson's Corner and feel proud to be part of PAF!

- **Actuarial Superjobs: Evolving Roles Demand an Integrated Skillset—by James Hardington Dunseth, Tony Johnson, and Adam Cloe**

  - While many current occupations, even some in the actuarial sector, are in danger of elimination by AI and ML, a new opportunity exists for those actuaries who embrace these technologies—a chance for a "Superjob." Read what these attractive and lucrative jobs might be like, and how you can better prepare for them.

- **Big Data—You've Rocked My World!—by Dorothy Andrews**

  - Contrary to what you might infer from the article title, Dorothy provides counterpoint from some of our favorite data science skeptics (Cathy O'Neil, author of *Weapons of Math Destruction* is a favorite of mine) and suggests Big Data sometimes leads to sloppy analysis and that "a truly outstanding data scientist knows how to put 'science' in the phrase data science." She raises important issues of correlation without causation.

- **Autoencoders for Anomaly Detection—by Jeff Heaton**

  - Autoencoder neural networks are cool! I like them a lot. They can perform dimensional reduction and many other tasks. Jeff presents them in a clear manner and then goes on to show an intriguing application where an autoencoder can alert us to events out of the ordinary, such as a network penetration attempt.

- **An Ever-Welcome Warning Against Big Data Hype: A Review of *Big Data, Big Dupe* by Stephen Few—By Mary Pat Campbell**

  - Mary Pat reviews a book that debunks some of the hype we read about using quantity at the expense of quality. She also points out some unrealistic outcomes when data scientists lack business knowledge. "Profitability is driven by policy year!" "Great, we'll go back in time and write more 2015 business." She sums it up as, "Go out and make sense of your data!"

All these articles are readable by an actuary without extensive background in predictive analytics (even by me!); yet they help extend our knowledge in a world where continual learning is mandatory for prolonged success.

Enjoy your PAF library! ■

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