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From the Editors: “The Times They Are A-Changin’”—Again!

By Dave Snell and Kevin Jones

Five years ago, in our December 2012 issue, Clark Ramsey, in his chairperson article for our section, wrote about the rapid changes taking place in the insurance environment. The title was a tribute to the Bob Dylan song from 1964. Now, in light of horrific floods in Houston, Florida and Puerto Rico, Dylan’s lyrics about rising waters and the need to swim rather than sink seem even more appropriate than they were in 1964. Times truly are changing. They are changing at an unprecedented pace and adapting will not be easy, but it will be necessary.

In the insurance industry we are seeing huge claims due to unprecedented natural disasters. But on another front, we are seeing even bigger changes. A more recent thought provoking read is the book *Homo Deus: A Brief History of Tomorrow*, by Yuval Noah Harari. In it, Professor Harari points out that humankind, ever since we existed, have had three major threats to our existence: wars, plagues and famine. But now all three of these have been mitigated to the point where the worldwide deaths in 2014 due to wars and other criminal acts (620,000) was a smaller number than those from suicides (800,000); which in turn was far smaller than those due to obesity (1,500,000). He makes the argument that “Sugar is now more dangerous than gunpowder” and tells us:

For the first time in history, more people die today from eating too much than from eating too little; more people die from old age than from infectious diseases; more people commit suicide than are killed by soldiers, terrorists and criminals combined.

Later in the book, Harari discusses the rapid progress in epigenetics and DNA modification and states that “A few serious scholars suggest that by 2050, some humans will become a-mortal (not immortal, because they could still die of some accident, but a-mortal, meaning that in the absence of fatal trauma their lives could be extended indefinitely).”



At the Predictive Analytics Symposium in September, I suggested that we might get to be like the Highlander, in the long-running television series about immortals who lived until their heads were chopped off. Later, an attendee came up and reminded me that many of the immortals became obsessed with “there can be only one” and tried to decapitate their peers. How might human behavior change if the only threat of death was from accident or malicious intent? What impact would this have on our value system if heaven and hell were avoidable by not dying? How would the health insurance industry change if diseases could be prevented via simple DNA manipulation (ala CRISPR/Cas9¹)? What would be the purpose of life insurance other than for terrible accidents?

Then, Harari went even further. His last two chapters discuss scenarios in which humans may evolve (or be replaced by) artificial intelligence (AI) and whether that might be an improvement.

Currently popular visionaries are divided on this issue, with Ray Kurzweil and others optimistically thinking the sentient machines will be benevolent protectors of humankind, with Bill Gates and Elon Musk and others fearing they might consider us obsolete, or treat us the way we currently treat cattle and other domesticated food sources. Whatever happens once

we reach the singularity (assuming AI can achieve this), the insurance industry will see dramatic changes in the interim.

Recent media articles suggest that those who can combine the math/statistics and the computer science/hacking skills with the business expertise and futuristic insight to apply these skills to competitive advantage are the new unicorns. This nearly mythical breed of data scientist is rare, hard to find, and expensive. As members of the Predictive Analytics and Futurism (PAF) Section, we can choose to be part of the revolution, by embracing the new technologies and techniques of predictive analytics/AI/machine learning/complexity sciences/futurism; or we can ignore these opportunities and become part of the collateral damage.

Personally, I’d prefer to be a unicorn.

we can choose to be part of the revolution, by embracing the new technologies and techniques of predictive analytics.

- In this issue, we start with the perspective of outgoing chairperson (chief unicorn?) Ricky Trachtman who advises us in the “Outgoing Chairperson’s Note”: “You know you’re a futurist if you ask ‘What’s next?’ instead of ‘What’s new?’” and then explains how the section has increased podcasts, webcasts, conference participation and other forms of value-added services for PAF members.
- Next, Anders Larson, in his “Chairperson’s Corner,” tells us about the new predictive analytics exposure requirement for the ASA designation, but reminds us “that doesn’t mean that today’s actuarial students should be the only ones in our industry learning more about predictive analytics.” As Anders aptly states, “Actuaries of all levels would be well served to improve their understanding, or at the very least, awareness of the world of predictive analytics.”
- Bob Crompton follows next with “Artificial Intelligence and Its Effects on Life Insurance Companies,” in which he asks, “As the technology advances, and C-Suite decision making becomes possible for artificial intelligence, should we expect to see artificial executives?” He provides several application areas where AI could bring disruptive changes to our industry.
- In “Blinded by Predictive Analytics,” Bryon Robidoux describes a TED talk that tells how Nokia blindly followed their predictive analytics model in spite of rapid cultural

changes, and suffered from their myopic belief that the model was more indicative of the future than the insight of humans. It is a lesson in looking outside the model as well as outside the box.

- Rosmery Cruz, a new contributor for us, brings a fresh insight on overfitting with her article “Dangers of Overfitting in Predictive Analytics,” which we requested after her excellent presentation on this topic at the recent Predictive Analytics Symposium. Rosmery quotes expert statisticians who state: “Testing the procedure on the data that gave it birth is almost certain to overestimate performance.” And then she gives examples to show how that is true.
- Matthias Kullowatz, in “Logistic GLM credibility,” shows us ways to actually test the likelihood of our results. Some of us thought 42 was the answer²; but Matthias says, “Limited fluctuation credibility is why everyone loves the number 1,082,” and then he shows why this is sometimes the case when seeking a sense of how credible our results are.
- Ian Duncan follows with “Results from the 2017 Predictive Analytics in Healthcare Trend Forecast,” where he summarizes the recent Society of Actuaries (SOA) study and gives us the encouraging news that “The majority of health executives have a clear opinion of the future of predictive analytics in their field, as 93 percent believe it is important to the future of their business.”
- Next, Steve Fredlund, another new contributor, describes the “Society of Actuaries Trend Topic: How Predictive Analytics Can Bolster Organizational Expertise.” Steve tells us, “Even within HR, there is significant movement toward using data to gain paradigm-shifting insights about the workforce, leading to more optimal business results.” He also addresses the question on the mind of his CEO: “Is it working?”
- Michael Niemerg contributes an excellent primer on how to get started with deep learning. His article, “Teach Yourself Deep Learning,” summarizes more than half a dozen current books, plus some online resources. I especially appreciated his summaries of which audience is most likely to benefit from each of the books. Our primary cost today is not dollar outlay, but time; and Michael has helped shortcut the learning process.
- Then we have an article by our deep learning author and expert, Jeff Heaton, who teamed up with an IT expert, Ed Deuser to describe how to move your research work into production with the article “From R Studio to Real-Time Operations.” They explain the use of the DeployR product, from Microsoft, and they provide sample code for implementation—with consideration for safety, robustness and scalability.

- Another prolific PAF contributor, Syed Danish Ali, is back with a new article “What Every Insurer Needs to Know About Impact Investing,” which he wrote as part of a Casualty Actuarial Society (CAS) Micro-Insurance Working Party. These are “investments in companies, organizations, and funds with the intention to generate social impact alongside a financial return” and he gives us insights into some of the future of how the industry may help improve the future.
- Finally, as we go to press, Dave Snell summarizes the PAF Section’s Predictive Analytics Symposium, and why the SOA’s President Jerry Brown has stated this will be an annual SOA conference, in his article “First Annual SOA Predictive Analytics Symposium—Big Success!”

It’s an exciting time to be part of this highly progressive section. Read on, unicorns! ■



Dave Snell, ASA, ACS, ARA, ChFC, CLU, FALU, FLMI, MAAA, MCP, is teaching Machine Learning at Maryville University in St. Louis. He can be reached at dave@ActuariesAndTechnology.com.



Kevin Jones, FSA, CERA, is associate actuary at Milliman in Buffalo Grove, Ill. He can be reached at kevin.jones@milliman.com.

ENDNOTES

- 1 Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) and the Cas9-gRNA protein complex have enabled precise gene editing.
- 2 In *The Hitchhiker’s Guide to the Galaxy*, by Douglas Adams, 42 is the “Answer to the Ultimate Question of Life, the Universe, and Everything.” Unfortunately, it was calculated by an enormous supercomputer named Deep Thought over a period of 7.5 million years and by then nobody remembered the question.

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