Announcement of the Itô Prize Winners 2013

The journal Stochastic Processes and Their Applications awards the 2013 Itô Prize to a paper published between 2011 and early 2013, recognizing a significant contribution to the advancement of the theory or applications of stochastic processes. The prize honors the memory and celebrates the legacy of Professor Kiyosi Itô and his vast and seminal contributions to probability theory. The prize consists of a monetary award of $ 5000 and an invited lecture presenting the paper.

The 2013 winning article was selected by the Editorial Board of the journal:

Hirofumi Osada, Interacting Brownian motions in infinite dimensions with logarithmic interaction potentials II: Airy random point field, SPA, 123 (2013), 813-838.

The Editorial Board of SPA congratulates Hirofumi Osada. The Itô Prize Ceremony and the Itô Lecture are part of the Scientific Program of the 36th Conference on Stochastic Processes and Their Applications (July 29 to August 2, 2013, University of Colorado, Boulder, USA).

Takashi Kumagai,
Kyoto

SPA/Elsevier Travel Awards 2013 for the 7th International Conference on Lévy Processes: Theory and Applications

The 7th International Conference on Lévy Processes: Theory and Applications will be held at Wrocław, Poland, from 15 to 19 July 29, 2013.

The publishing company Elsevier and the journal Stochastic Processes and Their Applications - An Official Journal of the Bernoulli Society - sponsor the conference with two Elsevier Travel Grants worth 500 Euros each.

The grants will be awarded to the following young researchers:

- Victoria Knopova (Kiev, Taras Schevchenko University and Ukrainian Academy of Sciences)
- Nikola Sandrić (University of Zagreb)

Takashi Kumagai,
Kyoto

David's Musings: Cooper versus Greene, Peters versus Mercator, and Silver versus Big Data

The International Year of Statistics gives me an excuse to return to my favorite topic, popular expositions of science, with several little stories.

In an episode of *The Big Bang Theory*, the (fictional) physicist Sheldon Cooper attends a popular talk by the (real) physicist Brian Greene in order to hear and mock whatever everyday analogy Greene will give for the Uncertainty Principle. Sheldon is duly rewarded when he hears "it's like a Chinese restaurant, where you can order items from menu A or menu B but not from both". This is my favorite illustration of the danger of ignoring the second half of the well known advice *everything should be made as simple as possible, but not simpler*. Incidently, there is no evidence to support the common attribution of this advice to Einstein.

When reading journalistic accounts of scientific research, and in the small percentage of cases where I know the field, I often find that what is presented as "an exciting new idea from Professor X" is actually a well known (to experts) and less exciting old idea from Professors A, B and C. Let me give my favorite example from outside probability or statistics, discussed at length in Jerry Brotton's wonderful book *A History of the World in Twelve Maps*. Brotton's first map is Ptolemy's *Geography*, and his twelfth is *Google Earth*, but the story (readily found also on Wikipedia) concerns the eleventh. In 1973 a historian, Arno Peters, called a press conference to announce "a new map of the world" which used an equal-area projection, pointing out that the Mercator projection, familiar to us all since childhood classroom walls, exagerates the areas of countries far from the equator. This created a media sensation, and the map was widely adopted over the next 20 years, often accompanied by ideological rhetoric such as *The European world concept, as the*

last expression of a subjective global view of primitive peoples, must give way to an objective global concept (Peters). Professional cartographers were infuriated, for many reasons. Peters' projection was in fact merely one of the large number of known projections whose mathematical properties have been derived, and whose conceptual advantages and disadvantages have been discussed, over the previous centuries. Some of Peters' claims about the good properties of his projection relative to others were mathematically incorrect. And the cartographers' own long campaign to replace Mercator, with its well-known disadvantages, by some arguably-better projection as the default map of the World had been notably unsuccessful, so they were irritated that an incompetent amateur had partially succeeded in doing so. Of course nothing similar could happen in Probability or Statistics, could it? The saga ended quietly with a return to the *status quo ante*, in that the Gall-Peters projection (first described by Gall in 1855) is no longer so popular, but no other projection has supplanted Mercator.

Turning to Statistics, it is important for popularizers, whether academics or journalists, to remember that academic statisticians tend to think of Statistics in terms of methodology, whereas the public thinks in terms of concrete instances -- what sort of data do you have and what specific conclusions can you draw? -- without caring about how they are drawn. Let me illustrate this point in the context of *Big Data*, a phrase that readers have surely encountered with rapidly increasing frequency over the last year or two. A good illustration of how Big Data is presented to the public -- in this case to the business public -- is a 150-page McKinsey report from 2011, which I suspect has been subsequently used as a source for journalistic articles. The report mixes business-speak: *Big Data will help create new growth opportunities and entirely new categories of companies, such as those that aggregate and analyze industry data ... companies that sit in the middle of large information flows where data about products and services, buyers and suppliers, and consumer preferences and intent can be captured and analyzed ....* with somewhat more specific examples. As for methodology, the report merely gives an alphabetical list of 26 "techniques for analyzing big data" and attempts one-paragraph descriptions.

Now I am not criticizing the McKinsey report, which is appropriate for its intended audience. Turning to the academic sphere, although readers will be well aware of the current prominence of the phrase *Big Data*, older readers may not have realized the implication that existing Statistics textbooks and courses not focused on Big Data (i.e. almost everything we teach undergraduates) are now regarded as anachronistic by much of the literate public. Younger colleagues do realize this, and more than half the applicants for our Assistant Professor position this year mentioned Big Data in their research statements. But what they mean, typically, is the methodology of machine learning.

From a third angle, readers in the U.S. will be familiar with Nate Silver's success in predicting the 2012 Presidential election, which resulted in headlines such as *Nate Silver's Sweep is a Huge Win for Big Data*. This came shortly after publication of his book *The Signal and the Noise: Why So Many Predictions Fail -- but Some Don't*. Silver's own technical expertise is in three of the thirteen topics of the book (baseball player performance, poker, election prediction from opinion polls). These are particularly amenable to the signal/noise paradigm -- with substantial data and only slowly changing ground rules. So his message is to rely on data rather than the subjective opinions of yourself or media pundits. I enjoyed the book, as popular science, and (aside from mispresenting Bayesianism vs frequentism, as does almost every such book) it seems a well-written account of its particular topics, and it has made a good conversation topic in talking with academic statisticians. However, as others such as Kent Anderson have noted, journalists are confused when they place his work in the Big Data category. The quantity of data used isn't comparable to the quantity of data that Walmart or Google have. And his methodology is classical, in the sense of using careful human-devised models rather than the black box output of machine learning algorithms.

So my point is that three very different views of Big Data are held by the business community, by academic statisticians and by inattentive readers of Nate Silver. Those with a penchant for nerd humor might also find a fourth view on my web page *Big Data: the substitute for Love*.

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Editor's note: This is the seventh installment of a regular opinion column.