

Highlights

A Glimpse into the Bayesian Century

By now, it would not exactly be controversial to proclaim that the 21st century is a Bayesian century. Legendary Bayesians (such as Lindley) have made such a prediction, as did some empirical Bayesians, semi-Bayesians, quasi-Bayesians, pseudo-Bayesians, and even non-Bayesians (names are omitted for obvious reasons). But what does this mean exactly? Whereas you might not find a precise answer anywhere, the eleven articles and two editorials in this issue should give you a sense of where the predictions came from. Bayesian methods have been used everywhere, even in places where their uses are still questionable, at least to some. The articles here cover a wide range of topics, including clinical trials, density estimation, experimental designs, genetic studies, variable selection, survival analysis, time series, and wavelets estimation. This, of course, is just the tip of an iceberg, particularly because this theme topic, like the theme topic on missing data in the 2006 October issue, is self-organized — we simply group them as we try to clean up our backlog.

We are fortunate to have two leading Bayesians to lead this theme issue with complementary editorials, providing us with a glimpse into the Bayesian century ahead of us. Hani Doss elaborates on the “mother of all problems” for Bayesian inference, or inference in general, that is, how to select the best possible model; or more precisely, select the most appropriate model one can afford and find for a particular inferential task at hand. Andrew Gelman’s editorial has a more philosophical spin, drawing parallels between inferential conservatism and political conservatism. One of Andrew’s main emphases is that we should be much more careful in putting down seemingly “conservative” or non-informative prior distributions, because they may have unintended consequences; this is particularly the case for high-dimensional problems, which undoubtedly will be more abundant as we head deep into the 21st century and beyond.

As with the editorial in the 2006 October issue, a connection can be drawn

here between the theme and our editorial practice. Since the October editorial, our targeted 4-month first turn-around review time has been moved from being the 90th percentile to the 95th percentile. For those who are curious about how this record was achieved, you are invited to the Roundtable Luncheon I'll host at the 2007 JSM in Utah: *Dealing with Review Efficiency: A Practical Bayesian Approach*.

Finally, because Andrew refuses to submit a head shot, I had to impute. The 1992 photo on this page provides a good illustration of two methods of solving statistical problems — Bayesian or not — namely, deep thinking and trial-and-error. Hope it does not require deep thinking for you to figure out what applied problem I was trying to solve! For Andrew's, it does

— Xiao-Li Meng



Hani Doss is a professor in the Statistics Department at the University of Florida. He currently works in the areas of survival analysis, Markov chain Monte Carlo, and non/semi-parametric Bayesian methods, and he is interested in Bayesian methods in biostatistics. He received his Ph.D. in Statistics from Stanford University in 1982, under the supervision of Persi Diaconis.



*Andrew Gelman is a professor in the Statistics Department and Political Science Department at Columbia University. He teaches statistics and political science and directs the Applied Statistics Center at the University. He is the author of *Bayesian Data Analysis* (1995, 2003, with John Carlin, Hal Stern, and Donald Rubin), *Teaching Statistics: A Bag of Tricks* (2002, with Deborah Nolan), and *Data Analysis Using Regression and Multilevel/Hierarchical Models* (2007, with Jennifer Hill). He would like to write an introductory statistics book but first has to figure out what should go into it.*