

Editorial

A Rigorous Statistician and Passionate Educator

On August 8, 2005, we were shocked by the sudden loss of an outstanding researcher, prominent educator, supervisor, and colleague, Professor Xiru Chen, who was among the first few people officially recognized to be eligible to supervise doctoral theses in China, and also the first statistician elected as an academician of the Chinese Academy of Sciences. His textbook, *Introduction to Mathematical Statistics* (1981, 1st edition; 1997, 2nd edition), has been adopted by graduate statistical programs at the majority of universities in China. For several generations of Chinese statisticians, his influence can be seen in their excellence in research and publications. His ingenious ideas and theoretical concepts filled in the gap left after the Cultural Revolution, which broke the main stream of research activities for almost ten years.

Professor Chen was particularly renowned for his expertise in asymptotic theory, as applied to important statistical problems, such as large sample properties of parameter estimation in linear regression models, consistency of M-estimators, optimal convergence rates of density estimations, properties of U-statistic, R-statistic and many others. To promote statistical research and applications in China, and to bring more scientists into this discipline, Professor Chen held special classes for undergraduates at the University of Science and Technology of China in 1959, 1961 and 1963. After the Cultural Revolution, Professor Chen organized a series of workshops across the mainland, and spent a significant portion of his time giving lectures to younger researchers. A majority of current statisticians in the mainland have experienced his workshops. In addition to his regular appointment at the University of Science and Technology of China, Professor Chen was also an adjunct professor at more than 20 universities and research institutes. He committed three months each year to teaching workshops on special topics, including supervising graduate students at Wuhan University since 2001.

I would like to share one example of his teaching style. It is well known that pairwise independence does not imply mutual independence for a group of random

variables. In a lecture in 1979, he solicited from the class examples among n non-independent random variables such that every $n-1$ of them were independent. One of his students soon proposed an example with a discrete distribution. Yet is it possible to have such an example with a continuous distribution? The answer was found positive. Then, is it possible to find examples with any given non-degenerate marginal distribution F ? The problem ultimately generated a class of examples. It was finally shown that for any given set of distributions F_1, F_2, \dots, F_n , and any $1 \leq r < n$, there exist a set of random variables X_1, X_2, \dots, X_n with marginal distributions given by F_1, F_2, \dots, F_n , such that any subsets of size r are independent, but none of the subsets of size $r+1$ are independent. The result was published in the *Chinese Bulletin of Science* (Bai, Su, Fang, Chen 1980, 25, 90-95).

Even when he was well established in the statistical community, Professor Chen remained a modest and warm scholar to everyone. He was always ready to help young students at his small Zhongguancun apartment when he was working for the Institute of Systems Science without a private office or any home telephone service in the 1980s. Students would visit his apartment without an appointment, and sometimes interrupted him at very inconvenient times (e.g., when he taking a nap according to Dr. Dongsheng Tu, one of his luckiest students). Yet his students were warmly welcomed at each of their visits, and received not only technical/historical lessons on statistics, but also his solid understanding of statistical theory. He also advised students on their personal research interests. Of course, his advice was always sage. For example, Dongsheng wanted to do something with the bootstrap method, which was a relatively new research topic at that time in China. Professor Chen was not working on the topic, but he immediately recommended a working problem with suggested references in the literature, which resulted in Dongsheng's first paper on bootstrap (i.e., Bootstrapping of L-statistics, *Chinese Bulletin of Science*, 1996). Professor Chen's impact continued to be evident in Dongsheng's work even after he committed himself to more applied topics and worked primarily as a biostatistician in cancer research.

I was too shy and ignorant of everything outside my own little world as an undergraduate. The time to apply to a graduate program came quickly in 1981. I was scared of the unknown world, and had no idea about what a graduate program really was, nor how to choose my supervisor and a graduate major. Someone recommended Professor Chen and his expertise in statistics. At that time, Professor Chen had a

reputation as a very active researcher with many ideas, and more importantly, always being nice to students. It would be safe for me indeed, if I could not come up with any innovative research topic on my own toward the end of graduate study. After taking the graduate entrance exam, however, I became stressed due to rumors while waiting for the results for quite a long time. The best information source, I decided, must be Professor Chen himself. I wrote to him about the exam results and soon received his prompt answer -- I was thrilled with the good news. Only then did it occur to me that Professor Chen had no obligation to reply to an inquiry from an unknown undergraduate. But his letter rebuilt self-confidence in a young mind both academically and socially, and my gratitude to him remains the same with every passing year.

Aside from scholarly work, Professor Chen always showed great compassion, and understanding about people around him. When visiting the University of Pittsburgh in 1986, he cared for all the visiting scholars and students in a small Chinese statistics community. He particularly kept caring eyes on young scholars and graduate students by offering inspiring questions, constructive suggestions, and joint brain-storming exercises. The research and learning process became very enjoyable for everyone in the small community because of his influence. He was also a master chef in cooking Chinese foods. He would cook a few dishes for guests whenever he had a chance. There were many fans of Chen's cuisine in the small community in Pittsburgh.

In commemoration of Professor Chen, the International Chinese Statistical Association and the editorial board of *Statistica Sinica* selected three research papers among admitted submissions in his memory. With this action, we express our deep sorrow at losing a pioneer in statistical education and research.

— **Jiahua Chen**



Jiahua Chen received his PhD from the University of Wisconsin-Madison in 1990. His research interests include finite mixture models, statistical genetics, empirical likelihood, and survey methodology. He has published research work in most major statistical journals, including Statistica Sinica, the Annals of Statistics, the Journal of the American Statistical Association, the Journal of the Royal Statistical Society, Biometrika, Technometrics, and the Canadian Journal of Statistics. He served as the president of the International Chinese Statistical Association in 2005, and the Section of Survey Methodology of the Statistical Society of Canada in 2007. He was a member of the Grant Selection Committee of the Natural Science and Engineering Research Council of Canada. He is an elected fellow of the Institute of Mathematical Statistics, and recipient of the CRM-SSC Prize in Statistics for his outstanding contributions to statistical sciences. This prestigious award, jointly sponsored by the Statistical Society of Canada (SSC) and the Centre de recherches mathématiques de Montréal (CRM), is given each year to a Canadian statistician in recognition of outstanding contributions to the discipline during the recipient's first 15 years after earning a doctorate. He is currently a Canada Research Chair, Tier I, in statistical genetics in the Department of Statistics, University of British Columbia, Vancouver, Canada.