Statistical Engineering Division Seminar

Tuesday June 17, 1997, 11:00 am

Lecture Room E, Administration Bldg.
NIST
Gaithersburg, MD

Censoring and Random Truncation: An Overview of Statistical Methods for Incomplete Data

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In many scientific investigations, experimental data consists of recordings of "time-to-occurrence of a specified event." A prototype example is the recording of failure times (or event times) of a system over a specified period of time, or more generally over several periods of time. It often happens that some of the recorded failure times are incomplete due to censoring or random truncation.

Statistical theory shows that one cannot throw away the incomplete data without introducing bias in the final analysis. We discuss stochastic modeling of censoring and random truncation, the important role of hazard function in the analysis, and the nonparametric estimation of the distribution function of the failure time. The estimation method is widely used in diverse applications, including engineering reliability, environmental risk analysis, astronomy, and biostatistics.

A two-stage neutron lifetime experiment of NIST will be used as an illustrative example.

Grace Yang, Professor of Statistics at the University of Maryland, College Park and Faculty Appointee with the Statistical Engineering Division at the NIST, received a Ph.D. in Mathematical Statistics from the University of California, Berkeley, 1966.

Dr. Yang is a Fellow and Council member of the Institute of Mathematical Statistics, and Associate Editor of the *Journal of Statistical Planning and Inference.* She was Associate Editor of the *Annals of Statistics*, President of the International Chinese Statistical Association, and Chairman of the Statistics Program at the University of Maryland.

Her research and publications include areas in stochastic modeling and statistical inference with applications to neurophysiology, effects of ionizing radiation, asymptotic theory, survival analysis, and renewal processes in quality control. She is the coauthor of a book with L. Le Cam on Asymptotic Theory in Statistics.

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