STATISTICS
TEXAS A&M UNIVERSITY

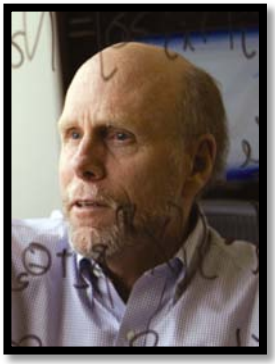
Raymond J. Carroll

YOUNG INVESTIGATOR AWARD CEREMONY

Tuesday, December 1, 2009
4:00 pm – 5:00 pm
Room 111, Koldus Student Services Building

S.C. SAMUEL KOU
2009 INAUGURAL RECIPIENT

Professor of Statistics
Professor of Statistics
Harvard University



Raymond J. Carroll, Distinguished Professor

The Raymond J. Carroll Young Investigator Award was established to honor Dr. Raymond J. Carroll, Distinguished Professor of Statistics, Nutrition and Toxicology, for his fundamental contributions in many areas of statistical methodology and practice, such as measurement error models, nonparametric and semiparametric regression, nutritional and genetic epidemiology. Carroll has been instrumental in mentoring and helping young researchers, including his own students and post-doctoral trainees, as well as others in the statistical community.

Dr. Carroll is highly regarded as one of the world's foremost experts on problems of measurement error, functional data analysis, semiparametric methods and more generally on statistical regression modeling. His work, characterized by a combination of deep theoretical effort, innovative methodological development and close contact with science, has impacted a broad variety of fields, including marine biology, laboratory assay methods, econometrics, epidemiology and molecular biology.

In 2005, Raymond Carroll became the first statistician ever to receive the prestigious National Cancer Institute Method to Extend Research in Time (MERIT) Award for his pioneering efforts in nutritional epidemiology and biology and the resulting advances in human health. Less than five percent of all National Institutes of Health-funded investigators merit selection for the highly selective award, which includes up to 10 years of grant support.

The Carroll Young Investigator Award will be awarded bi-annually on even numbered years to a statistician who has made important contributions to the area of statistics. Dr. S.C. Samuel Kou, Professor of Statistics and Director of Graduate Studies in the Department of Statistics at Harvard University has been selected as the inaugural recipient of this prestigious award.

S.C. Samuel Kou, Professor of Statistics
Harvard University

S.C. Samuel Kou received a bachelor's degree in computational mathematics from Peking University in 1997 and both his master's degree (2000) and doctorate (2001) in statistics from Stanford University, where he also served as a teaching assistant and instructor. He joined the Harvard faculty in 2001 as an Assistant Professor of statistics, earning promotion to full Professor in 2008. He says he became enthralled with statistics after taking an undergraduate course on probability that made him realize he wanted to use mathematics to solve real-world problems. Since then, he says he has been fascinated with doing research and living the life of a researcher.

In addition to winning a National Science Foundation CAREER Award in 2005 and being elected as a Fellow of the American Statistical Association in 2007, Kou was chosen as a Medallion Lecturer of the Institute of Mathematical Statistics this year. He also has helped organize several conferences and symposiums on statistics.

Kou's research includes stochastic inference and modeling in bio-physics, Monte Carlo statistical inference, nonparametric regression, empirical Bayes and model selection and economic and financial modeling. He has published over 25 articles and discussions and has been invited to give several talks.

Dr. Kou is cited for his significant contributions to the area of statistical methodology and its applications. His methodological research focuses on nonparametric methods and model selection. In terms of applications, he has published papers on stochastic influence in single molecule biophysics. Kou says he is thrilled to be selected as the inaugural recipient and considers it an honor to be affiliated with the award's namesake.

MULTI-RESOLUTION INFERENCE OF STOCHASTIC MODELS FROM PARTIALLY OBSERVED DATA

Tuesday, December 1, 2009, 4:00-5:00 p.m.
Room 111, Koldus Student Services Building

Stochastic models, diffusion models in particular, are widely used in science, engineering and economics. Inferring the parameter values from data is often complicated by the fact that the underlying stochastic processes are only partially observed. Examples include inference of discretely observed diffusion processes, stochastic volatility models, and state space models. Likelihood based inference faces the difficulty that the likelihood is usually not available even numerically.

Conventional approach discretizes the stochastic model to approximate the likelihood. In order to have desirable accuracy, one has to use highly dense discretization. However, dense discretization usually imposes unbearable computation burden. In this talk we will introduce the framework of Bayesian multi-resolution inference to address this difficulty. By working on different resolution (discretization) levels simultaneously and by letting the resolutions talk to each other, we substantially improve not only the computational efficiency, but also the estimation accuracy. We will illustrate the strength of the multi-resolution approach by examples.

STATISTICS
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