STATISTICS
TEXAS A&M UNIVERSITY

Raymond J. Carroll

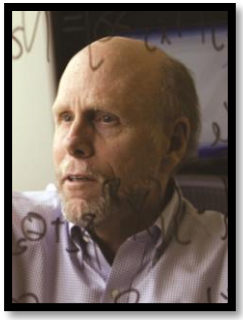
YOUNG INVESTIGATOR AWARD CEREMONY

Monday, March 26, 2018
3:00 pm – 4:30 pm

Texas A&M Blocker Building
Room 457

ERIC B. LABER
2017 RECIPIENT

Associate Professor of Statistics
North Carolina State 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 and holder of the Jill and Stuart A. Harlin '83 Chair in Statistics, 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 is awarded biennially on odd numbered years to a statistician who has made important contributions to the area of statistics. Previous winners of the award include S.C. Samuel Kou (2009 Inaugural Recipient), Marc Suchard (2011), Tyler VanderWeele (2013), and Daniela Witten (2015), We proudly recognize Prof. Eric B. Laber, Associate Professor of Statistics of North Carolina State University as the 2017 recipient of this prestigious award.

Eric B. Laber
Associate Professor of Statistics
North Carolina State University

Eric B. Laber received a B.S. degree from North Carolina State University in Mathematics with a specialization in Computing. He then attended the University of Michigan where he attained an M.A. and a Ph.D. in Statistics.

Prof. Laber is currently an Associate Professor in the Department of Statistics at North Carolina State University. His research focuses on the development of practical yet rigorous statistical methodology for data-driven decision-making. Major research areas are causal inference, non-regular asymptotics, optimization, and reinforcement learning. Primary application areas include precision medicine, artificial intelligence, adaptive conservation, and the management of infectious diseases. We also have a small robotics laboratory that we use to study cooperative and competitive decision problems.

Eric Laber was named Faculty Scholar at NC State University and also received the NSF CAREER AWARD grant. He received the Cavell Brownie Mentoring Award for innovative and extensive mentoring of graduate and undergraduate students. He was most recently awarded a Distinguished Alumni Award from Penn State Methodology Center.

Prof. Eric Laber was chosen to receive this award for his efforts in making seminal contributions to the development and application of reinforcement learning, optimization, empirical processes and the bootstrap, and analysis of large and complex data sets, and their application to inform clinical decision making, particularly in the treatment of chronic depression, schizophrenia, and attention deficit hyperactivity disorder. For more information on Eric Laber, please visit http://www.laber-labs.com/.

Optimal Treatment Allocations in Space and Time for Online Control of an Emerging Infectious Disease

Monday, March 26, 2018, 3:00 pm – 4:30 pm
Texas A&M Blocker Building, Room 457

A key component in controlling the spread of an epidemic is deciding where, when, and to whom to apply an intervention. We develop a framework for using data to inform these decisions in real-time. We formalize a treatment allocation strategy as a sequence of functions, one per treatment period, that map up-to-date information on the spread of an infectious disease to a subset of locations where treatment should be allocated. An optimal allocation strategy optimizes some cumulative outcome, e.g., the number of uninfected locations, the geographic footprint of the disease, or the cost of the epidemic. Estimation of an optimal allocation strategy for an emerging infectious disease is challenging because spatial proximity induces interference among locations, the number of possible allocations is exponential in the number of locations, and because disease dynamics and intervention effectiveness are unknown at outbreak. We derive a Bayesian online estimator of the optimal allocation strategy that combines simulation-optimization with Thompson sampling. The proposed estimator performs favorably in simulation experiments. This work is motivated by and illustrated using data on the spread of white-nose syndrome, a highly fatal infectious disease devastating bat populations in North America.

A reception for Eric Laber will be held at the Stella Hotel in the Celeste-B room beginning at 5:30 PM.
*Stella Hotel * 4100 Lake Atlas Dr. * Bryan, TX 77807*

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