STATISTICS
TEXAS A&M UNIVERSITY

Raymond J. Carroll

YOUNG INVESTIGATOR AWARD CEREMONY

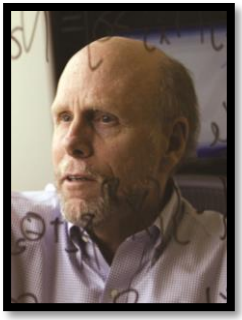
Wednesday, March 9, 2016
11:30 am – 12:30 pm

Texas A&M Blocker Building
Room 149

DANIELLA M. WITTEN

2015 RECIPIENT

Associate Professor of Biostatistics and Statistics
University of Washington



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 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) and Tyler VanerWeele (2013). We proudly recognize Prof. Daniela Witten, Associate Professor of Biostatistics and Statistics of the University of Washington as the 2015 recipient of this prestigious award.

Daniela M. Witten

Associate Professor of Biostatistics and Statistics
University of Washington

Daniela M. Witten received a B.S. degree from Stanford University in Mathematics and Biology with honors in 2005. She then earned a Ph.D. in Statistics in 2010 also from Stanford University.

Prof. Witten is currently an Associate Professor in the Department of Biostatistics and Statistics at the University of Washington. Her research involves the development of statistical machine learning methods for high-dimensional data, with applications to genomics and other fields. Daniela is a co-author (with Gareth James, Trevor Hastie, and Rob Tibshirani) of the very popular textbook "Introduction to Statistical Learning". She was a member of the Institute of Medicine committee that released the report "Evolution of Translational Omics".

Daniela is the recipient of a number of honors, including a NDSEG Research Fellowship, an NIH Director's Early Independence Award, a Sloan Research Fellowship, and an NSF CAREER Award. Her work has been featured in the popular media: among other forums, in Forbes Magazine (three times), Elle Magazine, on KUOW radio, and as a PopTech Science Fellow.

Prof. Witten was chosen to receive this award for her efforts in making seminal contributions to the development and application of statistical machine learning techniques to the analysis of high dimensional data, particularly in the application of these techniques to genomic data. For publications and more information on Daniela Witten, please visit http://faculty.washington.edu/dwitten/.

FLEXIBLE AND INTERPRETABLE REGRESSION USING CONVEX PENALTIES

Wednesday, March 9, 2016, 11:30 am – 12:30 pm
Texas A&M Blocker Building, Room 149

We consider the problem of fitting a regression model that is both flexible and interpretable. We propose two procedures for this task: the Fused Lasso Additive Model (FLAM), which is an additive model of piecewise constant fits; and Convex Regression with Interpretable Sharp Partitions (CRISP), which extends FLAM to allow for non-additivity. Both FLAM and CRISP are the solutions to convex optimization problems that can be efficiently solved. We show that FLAM and CRISP outperform competitors, such as sparse additive models (Ravikumar et al, 2009), CART (Breiman et al, 1984), and thin plate splines (Duchon, 1977), in a range of settings. We propose unbiased estimators for the degrees of freedom of FLAM and CRISP, which allow us to characterize their complexity.

STATISTICS
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