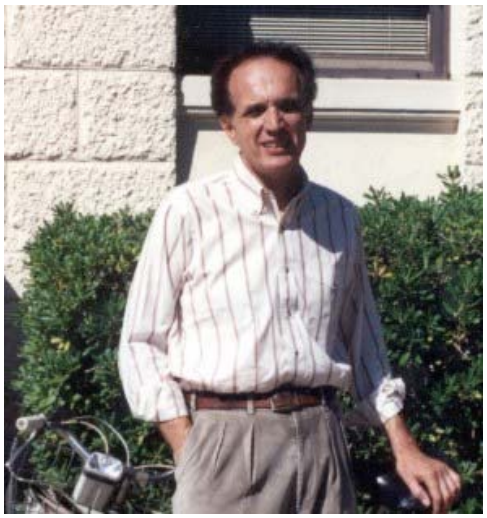
CHALLIS LECTURE BY PROFESSOR BRADLEY EFRON



Bradley Efron, Professor of Statistics and Biostatistics at Stanford University is the recipient of the Challis Lectureship Award in 2005. The Challis Lecture is an annual public lecture established by the Gill Foundation of Texas in cooperation with the Department of Statistics at the University of Florida. The lecture is presented by a premier statistician who has made profound contributions to statistics.

Bradley Efron is one of the most eminent statisticians of this era. He holds the Max H. Stein endowed chair as Professor of Humanities and Sciences at Stanford. Professor Efron is most well-known for proposing the Bootstrap resampling technique, which has been applied in many quantitative disciplines beyond statistics. He works on a combination of theoretical and applied topics, including empirical Bayes, survival analysis, microarray gene expression data, false discovery rates, astrophysics, exponential families, resampling methods and many other fundamental areas of statistical science. Much of his applied work has originated in biomedical consulting projects at the Stanford Medical School, mixed in with a few papers concerning astronomy and physics. Even his theoretical papers usually begin with specific applied problems.

Bradley Efron was born in St. Paul, Minnesota, May 1938, to Esther and Miles Efron. A Merit Scholarship, in the program's inaugural year, brought him to Caltech, graduating in Mathematics in 1960. He arrived at Stanford that fall, eventually gaining his Ph.D., under the direction of Rupert Miller and Herb Solomon, in the Statistics Department. Bradley Efron has been at Stanford since 1960, with sabbaticals at Harvard, Imperial College and Berkeley. He has held several administrative positions in the university: Chair of Statistics, Associate Dean of Science, Chairman of the University Advisory Board, Chair of the Faculty Senate and Chair of the Undergraduate Program in Applied Mathematics.

Honors include doctorates from Chicago, Madrid and Oslo, a MacArthur Prize Fellowship, membership in the National Academy of Sciences and the American Academy of Arts and Sciences, fellowship in the Institute of Mathematical Statistics (IMS) and the American Statistical Association (ASA), the Wilks Medal, Parzen Prize,

the newly inaugurated Rao Prize and the outstanding statistician award from the Chicago Chapter of the American Statistical Association. He has delivered many prestigious lectures including the Rietz, Fisher and Wald lectures. Professional service includes Theory and Methods Editor of the *Journal of the American Statistical Association*, President of the IMS, and President of the ASA. He has published more than hundred publications in leading journals in statistics and several important publications in medical journals as well. He is the author of a classic monograph on Jackknife, Bootstrap and other resampling schemes and has also co-authored (with R. Tibshirani) an influential text on Bootstrap.

Bradley Efron will visit the University of Florida on November 29 and 30, 2005. The public lecture is on November 30 and is targeted towards a general audience. The lecture will be held in the JW Reitz Union, room 282, from 4:00-5:00pm, with refreshments from 3:30-4:00pm. The title and abstract of his public lecture follows. All are invited to attend.

FIFTY YEARS OF EMPIRICAL BAYES

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By Professor BRADLEY EFRON
Stanford University
November 30, Wednesday, 4:00-5:00pm,
JW Reitz Union Room 282
Refreshments from 3:30-4:00pm

Abstract: Scientific inference is the process of reasoning from observed data back to its underlying mechanism. The two great schools of statistical inference, Bayesian and frequentist, have competed over the past two centuries, often bitterly, for scientific supremacy. Empirical Bayes, a novel hybrid, appeared in the early 1950's, showing promise of immense possible gains in inferential accuracy. Nevertheless it has languished in the statistics literature, with its gains viewed as suspicious and even paradoxical by Bayesians and frequentists alike. New scientific technology, exemplified by DNA microarrays, has suddenly revived interest in empirical Bayes methods. This talk, which is aimed at a general scientific audience, examines the ideas involved through a series of real examples, and proceeds with a minimum of technical development.

He will also deliver a more technical lecture for a statistics audience on multiple testing problems on November 29 from 4:00-5:00pm in JW Reitz Union room 349. The title and abstract of his technical lecture is furnished below.

CORRELATION AND LARGE-SCALE SIMULTANEOUS SIGNIFICANCE TESTING

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By Professor BRADLEY EFRON, Stanford University,
November 29, Tuesday 4:00-5:00 pm , JWRU 349.
Refreshments from 3:30-4:00 pm.

Large-scale hypothesis testing problems, with hundreds or thousands of test statistics "z[i]" to consider at once, have become commonplace in current practice. Applications of popular analysis methods such as false discovery rates do not require independence of the z[i]'s but their accuracy can be compromised in high-correlation situations. This talk discusses methods, both theoretical and computational, for assessing the size and effect of correlation in large-scale testing problems. Two microarray examples will be used to illustrate the ideas. The examples show surprisingly large correlations that badly destabilize standard statistical analyses, but newer methods can remedy at least part of the trouble.