STATISTICS COLLOQUIUM

TUESDAY, MAY 11, 2010
TALK: 3:00 PM — SCIENCE CENTER, ROOM 705
RECEPTION: 4:15 PM — SCIENCE CENTER, 7TH FLOOR

"A new Kullback-Leibler statistic to quantify discrimination
and
calibration in Binomial models"

Yves Chretien
Department of Statistics
Harvard University

ABSTRACT

The "fraction of variation explained'' by a Binomial regression model can be quantified using analogues of R^2, but the values of such statistics depend on how the data are grouped. In real applications there is typically more than one scientifically plausible way to bin the data. Misleadingly high values can be obtained by over-binning, and misleadingly low values occur when no binning is done.

We show how to quantify the discrimination and calibration of a model by linking it to a biased-coin experiment, yielding a new bivariate statistic that is both invariant to the bin scheme and is easily understood by the statistical layperson. We illustrate the use of our statistic and identify its relationship to other measures.