Prix CRM-SSC et Journée de statistique bayésienne
CRM-SSC Prize and Bayesian Statistics Day

Le 8 novembre 2002 / ***November 8, 2002***
Salle / *Room* 6214
Pavillon André-Aisenstadt
Université de Montréal
2920, chemin de la Tour

10h30 : Mot de bienvenue / *Welcome*
10h40 : Lawrence Joseph, McGill University
Titre / *Title : Criteria for Bayesian Sample Size Determination*
11h40 à / *to* 14h00 : Diner / *Lunch*
14h00 : Hal S. Stern, University of California, Irvine
Titre / *Title : Loss Functions for Estimation of Extremes in Disease Mapping*
15h00 : Pause café / *Coffee Break*
15h30 : Remise du Prix CRM-SSC et allocution du récipiendaire /
Presentation of the CRM-SSC Prize and Conference
Larry Wasserman, Carnegie Mellon University
Titre / *Title : A Stochastic Process Approach to False Discovery Rates*

Résumés / ***Abstracts*****:**

Lawrence Joseph:

The vast majority of sample size calculations are currently carried out from a frequentist perspective, and the vast majority of these are carried out via power calculations. Most analyses these days, however, use interval estimation rather than hypothesis tests when reporting results, and the design of the study should match the eventual analysis that will be performed. For example, it is well known that power calculations do not necessarily lead to sufficiently large experiments for accurate interval estimation. Classical fomulae require exact point estimates of unknown quantities, so that Bayesin methods have obvious advantages. Through a series of real examples, mostly arising from my work as a biostatistician at the Montreal General Hospital, we will introduce, and then compare and contrast the many Bayesian criteria for sample size determination that have been proposed over the past few years. The various criteria use the available prior information in different ways, and so much of the discussion will centre around how to best use the prior information. The prior itself is of course uncertain, or may vary from researcher to researcher, and we will discuss some ways to handle the prior uncertainty.

Hal S. Stern :

Hierarchical probability models are commonly used to estimate small-area disease-morbidity or disease-mortality rates. From the resulting estimates it is often desirable to identify small areas (e.g., counties) with unusually high or low disease risk after accounting for known risk factors. Traditional estimates of the unexplained risk are based on the squared-error loss function; such estimates have good ensemble properties but may be suboptimal for some features of the distribution of risk parameters. We explore the use of alternative loss functions to derive improved estimates of extreme values. A disease mapping application is used to illustrate the approach. A simulation study is used to to compare the different loss functions.

Larry Wasserman (joint work with Chris Genovese) :

Controlling the false discovery rate (FDR) is a new approach to multiple testing introduced by Benjamini and Hochberg. The idea is to set a rejection threshold such that the expected fraction of false discoveries is less than some pre-determined error rate. We examine the false discovery proportion (FDP) (which is the realized but unobserved fraction of false discoveries) as a function of the threshold. Regarded this way, the FDP is a stochastic process. We discuss the limiting properties of the process and we give some new methods for controlling the quantiles of the process. This results in "confidence thresholds" which give stronger control than is obtained by only controlling the expected value.

Cet événement est organisé par le Laboratoire de statistique du CRM.