

Seminars on Statistics in Marketing and Psychology, Spring 2009

Research seminars in Marketing, Psychology and Statistics on WEDNESDAYS 12.30pm this term, in Cockins Hall 240.

These seminars will consist mainly of ongoing research presentations and discussions of published papers. You are welcome to join us.

LIST OF SEMINARS

April 1st: Catherine Scipione Forbes,
Department of Econometrics & Business Statistics Monash Univ., Australia
“Towards non-parametric inference for non-Gaussian state space models”

Abstract: Many financial time series models involve latent dynamic structures and are posed in a state space framework. Often either the state or measurement equation (or both) will involve either a non-linear regression structure or a (parametric) non-Gaussian distribution for the error terms. In this talk we will review some financial models of this type and discuss some of the Bayesian computational techniques that are available. We will also discuss recent developments and current work aimed at relaxing the parametric distributional specification.

April 9th: The Wherry lecture will be given by Richard Gonzalez of the Department of Psychology, University of Michigan on Thursday April 9th.

April 15th. Hao Wu, Department of Psychology
“A nonparametric Bayesian model of population selection effect in item response theory”

Abstract: Item response theory models the response of each person to each item by the logistic function and assumes a normal population of ability. These parametric assumptions may be unnecessarily strong, especially given the large samples IRT usually applies to. Bayesian nonparametric models with Dirichlet process have been successfully exploited to remove such restrictions and allow for either flexible response functions or flexible ability distributions. In the current study jointly with MacEachern, we will consider the situation in which the test are administered to a group monotonically selected from a population by their ability level and model the monotonic selection effect with Dirichlet process.

April 22nd: The SPAM seminar group will listen to a podcast of the WNYC radio show "Radiolab" (<http://www.wnyc.org/shows/radiolab/>). The episode, entitled "Choice", is related to our discussions of studies of consumer behavior.

"Abstract": We turn up the volume on the voices in our heads and try to make sense of the babble. On a journey around the country to understand how emotion and logic interact to guide us through our options, we ponder how we get through the million choices and decisions we make every day. Forget free will, some important decisions could come down to a steaming cup of coffee.

April 29th: No seminar

May 6th: David van Dyk, Professor of Statistics, UC Irvine
"Implementing Gibbs-type Samplers Using Incompatible Draws, with Applications in High-Energy Astrophysics"

Abstract: Ensuring the compatibility of conditional distributions is commonly emphasized in the constructions of Gibbs samplers: Compatibility is a necessary condition for proper convergence. In this talk I discuss a systematic strategy for the construction of MCMC samplers involving incompatible conditional distributions. This strategy is designed not only to ensure proper convergence to the target stationary distribution but also to provide chains with quicker convergence and smaller autocorrelations at stationarity. Our method can be viewed as a generalization of blocking in that the systematic strategy sometimes yields a blocked version of the parent Gibbs sampler. It is more general than blocking in that it sometimes yields a set of incompatible conditional distributions that do not correspond to any standard Gibbs sampler. The method was motivated by an applied problem in high-energy astrophysics, and we illustrate its use in three problems stemming from our applied work. Our strategy can be viewed as a stochastic version of the ECME and AECM algorithms. Changing the order of the steps of these EM-type algorithms can destroy their celebrated monotone convergence. Likewise, changing the order of the conditional draws of our samplers can destroy their target stationary distribution. Thus, some care must be taken in deriving and implementing these fast samplers.

May 13th: Greg Allenby, Marketing Department.
(joint work with Takuya Satomura and Jaehwan Kim)
Multiple Constraint Choice Models with Corner and Interior Solutions

Abstract: A choice model based on direct utility maximization subject to an arbitrary number of constraints is developed and applied to conjoint data. The model can accommodate both corner and interior solutions, and provides insights into the proportion of respondents bound by each constraint. Applica-

tion to volumetric choice data reveals the majority of respondents make choices consistent with price and quantity restrictions. Estimates based on a single monetary-constraint choice model are shown to lead to biased estimates of the monetary value of attribute-levels.

May 20th: Brandon Turner, Psychology Department
A Nonparametric Model of Signal Detection

Abstract: Signal detection theory forms the basis of many current models of memory, choice, and categorization. However, little research has examined precisely how the decision-making process unfolds over time. In this paper, a new nonparametric, dynamic model is proposed with the intentions of ameliorating some long-standing issues in the signal detection framework and describing the changes in signal detection performance over time. The model uses a recursive kernel density estimation procedure that accumulates and stores experience across trials. I present the results of several simulations and show that the proposed model bypasses the rigid assumptions of prior internal representations of the sampling distributions and as a consequence, it allows the criterion location to shift to accommodate new information as it is presented.

May 27th: no seminar

June 3rd: No seminar