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DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar

Dr. Jing SHEN

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Merial, A Sanofi Company
Athens, GA

will give a talk

entitled

**MINIMUM CONDITIONAL HELLINGER DISTANCE
ESTIMATION OF FINITE MIXTURES
OF GENERALIZED LINEAR MODELS**

Abstract

We study minimum Hellinger distance (MHD) estimation for finite mixtures of generalized linear models (FMGLMs), a class of models useful for modeling data arising from heterogeneous populations. Minimum Hellinger distance estimation is well established as a robust approach to fit models for independent identical distributed observations. Recently, it has been applied to mixture models with regression structure but the asymptotic properties in this context remain unexamined. In this talk, we define a new MHD estimation method based on conditional densities in the general FMGLMs context, which terms minimum conditional Hellinger distance estimation. We prove that our new method yields consistent and asymptotic normally distributed estimators under certain regularity conditions. Numerical results suggest that our method is more robust than the maximum likelihood estimator in the presence of outliers and competitive with it otherwise. In addition, we demonstrate that our method is more efficient than the previous one in the literature and can be applied more broadly. Example involving data sets from a veterinary cardiology study is used to illustrate our method.

KEY WORDS: Conditional density; Mixture models; Outliers; Robustness; Zero inflated binomial; Zero inflated Poisson.

on

Thursday, December 8, 2011

3:00 p.m. – 4:00 p.m.

at

**Room 524, Meng Wah Complex
(behind the Chong Yuet Ming Amenities Centre)**

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All interested are welcome