For Favour of Posting

THE CHINESE UNIVERSITY OF HONG KONG

Department of Statistics

will present a seminar entitled

A Hidden Markov Modeling Approach To Multiple Change-Points

by

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on

Tuesday, 13 February 2007
2:00pm – 3:00pm

in

Lady Shaw Building C2
The Chinese University of Hong Kong

Abstract:

After a brief review of previous frequentist and Bayesian approaches to multiple change-points, we describe a hidden Markov modeling approach that has attractive computational and statistical properties. This approach yields explicit recursive filters and smoothers for estimating the piecewise constant parameters in multidimensional exponential families and generalized linear models, closed-form joint distributions of the latent parameters and change-points, and efficient estimators of the hyperparmeters of the hidden Markov model for the parameter jumps. Although the approach is Bayesian in nature, it can be used for frequentist problems such as significance testing of the null hypothesis of no change versus multiple change-point alternatives. It can also be used to partition the unknown parameter sequence into segments of equal values and to provide confidence assessment of the segmentation. Applications to array-based comparative genomic hybridization data, change-point volatility models in financial time series, and adaptive control of change-point ARX systems are also given.

All are Welcome