Boston University Statistics and Probability Seminar Series

Bayesian Clsuetring with Regression

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Thursday, March 27, 2008, 4-5pm
Mathematics and Computer Science (MCS) Building, Room 149
111 Cummington Street, Boston

Tea and Cookies at 3:30pm in MCS 153

Abstract:

We propose a model for covariate-dependent clustering, i.e., we develop a probability model for random partitions that is indexed by covariates. The motivating application is inference for a clinical trial. As part of the desired inference we wish to define clusters of patients. Defining a prior probability model for cluster memberships should include a regression on patient baseline covariates. We build on product partition models (PPM). We define an extension of the PPM to include the desired regression. This is achieved by including in the cohesion function a new factor that increases the probability of experimental units with similar covariates to be included in the same cluster.

We discuss implementations suitable for continuous, categorical, count and ordinal covariates.

For directions and maps, please see *http://math.bu.edu/research/statistics/statseminar.html.*