Yale SCHOOL OF PUBLIC HEALTH

Biostatistics

Spike-and-Slab Priors for Variable and Edge Selection and Applications to Large-scale Data

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ABSTRACT

There is now a huge literature on Bayesian methods for variable selection that use spike-and-slab priors. Such methods, in particular, have been quite successful for applications in a variety of different fields. High-throughput genomics and neuroimaging are two such examples. There, novel methodological questions are being generated, requiring the integration of different concepts, methods, tools and data types. In this talk I will first review spike-and-slab priors for variable selection in the context of linear regression models. I will then talk about parallel methodological developments for graphical models, where priors are specified on precision matrices. I will address in particular the case of estimation on multiple graphs that may share common features. If time allows I will also describe extensions of the models to non-Gaussian data. I will show applications from neuroimaging data and from microbiome data.

12:00 Noon, Tuesday, October 29, 2019
47 College Street, Room 106B
11:45 AM - Lunch served outside Room 106B