THE UNIVERSITY OF GEORGIA
DEPARTMENT OF STATISTICS

Colloquium Series

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UNC Chapel Hill

Tuesday, August 28, 2018

3:30pm in room 102, Caldwell Hall

Mining Differential Correlation

Given data obtained under two sampling conditions, it is often of interest to identify variables that behave differently in one condition than in the other. This talk will describe a method for differential analysis of second-order behavior called Differential Correlation Mining (DCM). DCM is a special case of differential analysis for weighted networks, and is distinct from standard analyses of first order differential behavior, for example studies of differential expression.

The DCM method identifies sets of variables A that are differentially correlated, in the sense that the average pairwise correlation of variables in A is significantly higher under one sample condition than the other. The DCM method is based on an iterative testing procedure that adaptively updates the size and elements of a candidate variable set. Updates are performed via hypothesis testing of individual variables, based on the asymptotic distribution of their average differential correlation. The method does not assume that the sample or population correlation matrices are sparse, or have any particular structure.

I will present both simulation results and applications of DCM to genomics and brain imaging. As time permits, I will also present a brief overview of some additional network related work being done with collaborators at UNC.

For more information, please contact us at:
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