

Departmental Colloquium

On the detection of non-independence

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Abstract: I will discuss a few recent results from my group aiming to the detection of non-linear dependence between two random variables. Our approach is based on an optimal slicing (discretization) of one or both variables to optimize a score function derived from a likelihood-ratio test formulation. Our approaches are compared with some well-known methods such as Distance Correlation, Pearson Correlation, Maximal Information Criterion, etc., on many simulated examples, and found superior for highly nonlinear and non-smooth relationships between the two variables. We will also show how these methods are applied to bioinformatics problems such as gene-set enrichment analysis, transcription regulation analysis, etc.

Friday, November 14 at 3:00 PM in SEO 636