THE UNIVERSITY  OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

PROBABILITY AND INFORMATION THEORY SEMINAR

Quantify the Cooperative Interaction among Multiple Features in Logistic Regression Models

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Abstract:

Feature selection is the process of extracting a subset of features to simplify the model's structure. It can enhance model interpretability, shorten the training time and reduce model overfitting. During the selection procedure, the synergy function, a generalized form of mutual information, can serve as a quantitative measure of the cooperative interaction among multiple features. In this talk, we theoretically derive the quantitative relationship between the synergy functions and the coefficients of cooperative interactions in the logistic regression models, and further suggest an efficiently computational algorithm to make synergistic pair selection. Also, the underlying synergistic pairs can be represented as edges in an undirected graph. When this graph is a tree, we propose an algorithm to detect its edges by constructing a weighted graph from the data and then finding the maximum spanning tree.

Date:	July 20, 2015 (Monday)
Time:	11:30am – 12:30pm
Place:	Room 309, Run Run Shaw Bldg., HKU

All are welcome