DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar

Dr. Lingsong ZHANG

Department of Statistics
and
Regenstrief Center for Healthcare Engineering
Purdue University
U.S.A.

will give a talk

entitled

DISTANCE-WEIGHTED SUPPORT VECTOR MACHINE

Abstract

A novel linear classification method that possesses the merits of both the Support Vector Machine (SVM) and the Distance-weighted Discrimination (DWD) is proposed in this article. The proposed Distance-weighted Support Vector Machine method can be viewed as a hybrid of SVM and DWD that finds the classification direction by minimizing mainly the DWD loss, and determines the intercept term in the SVM manner. We show that our method inheres the merit of DWD, and hence, overcomes the data-piling and overfitting issue of SVM. On the other hand, the new method is not subject to imbalanced data issue which was a main advantage of SVM over DWD. It uses an unusual loss which combines the Hinge loss (of SVM) and the DWD loss through a trick of axillary hyperplane. Several theoretical properties, including Fisher consistency and asymptotic normality of the DWSVM solution are developed. We use some simulated examples to show that the new method can compete DWD and SVM on both classification performance and interpretability. A real data application further establishes the usefulness of our approach.

on

Monday, May 30, 2016

(Refreshments will be served from 11:15 a.m. outside Room 301 Run Run Shaw Building)

11:30 a.m. – 12:30 p.m.

at

Room 301, Run Run Shaw Building

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

All interested are welcome