

For favour of posting

For HKU Members Only

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Departmental Seminar

Miss Baihua HE

School of Mathematics and Statistics
Wuhan University
P. R. China

will give a talk
entitled

**FUNCTIONAL MARTINGALE RESIDUAL PROCESS FOR
HIGH-DIMENSIONAL COX REGRESSION WITH MODEL AVERAGING**

Abstract

Regularization methods for the Cox proportional hazards regression with high-dimensional survival data have been studied extensively in the literature. However, if the models are misspecified, this would result in misleading statistical inference and prediction. To enhance the prediction accuracy for the relative risk and the survival probability, we propose three model averaging approaches for the high-dimensional Cox proportional hazards regression. Based on the martingale residual process, we define the delete-one cross-validation process. Further, we propose three novel cross-validation functionals, including the end-time cross-validation, integrated cross-validation, and supremum cross-validation, to achieve more accurate prediction for the risk quantities of clinical interest. The optimal weights for candidate models, without the constraint of summing up to one, can be obtained by minimizing these functionals, respectively. The proposed model averaging approach can attain the lowest possible prediction loss asymptotically. Furthermore, we develop a greedy model averaging algorithm to overcome the computational obstacle when the dimension is high. The performances of the proposed model averaging procedures are evaluated via extensive simulation studies, showing that our methods achieve superior prediction accuracy over the existing regularization method. As an illustration, we apply the proposed methods to the mantle cell lymphoma study.

on

Wednesday, January 8, 2020

(Refreshments will be served from 2:15 p.m. outside Room 301 Run Run Shaw Building)

2:30 p.m. – 3:30 p.m.

at

Room 301, Run Run Shaw Building

All interested are welcome