

Statistics Seminar

Speaker

*Mr. Tharshanna Nadarajah
Memorial University*

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1:00-2:00pm, HH3017*

Penalized Empirical Likelihood Based Variable Selection for Longitudinal Data Analysis

Abstract: High-dimensional longitudinal data with large number of covariates, have become increasingly common in many biological applications. The joint likelihood function for longitudinal data is challenging, particularly for correlated discrete outcome data. In practice, we may not be able to make these assumptions and any such deviation on these assumptions may lead to inefficient estimates. In such situation, we propose penalized empirical likelihood based on generalized estimating equations (GEE). Variable selection and the estimation of the coefficients are carried out simultaneously. The proposed approach only requires specifying the first two marginal moments and a correlation structure. Empirical likelihood method combines the reliability of the nonparametric methods and flexibility and effectiveness of the likelihood methods. Simulation studies show that when model assumptions are true, its performance is comparable to that of the existing methods and when the model is mis-specified, our method has clear advantages over the existing methods. We have implemented the proposed method in a real case example.