Sparse Boosting for High-Dimensional Survival Data with Varying Coefficients

Jialiang Li

National University of Singapore
E-mail: stalj@nus.edu.sg

Abstract: Motivated by high-throughput profiling studies in biomedical research, variable selection methods have been a focus for biostatisticians. In this paper, we consider semiparametric varying-coefficient accelerated failure time models for right censored survival data with high-dimensional covariates. Instead of adopting the traditional regularization approaches, we offer a novel sparse boosting (SparseL2Boosting) algorithm to conduct model-based prediction and variable selection. One main advantage of this new method is that we do not need to perform the time-consuming selection of tuning parameters. Extensive simulations are conducted to examine the performance of our sparse boosting feature selection techniques.