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Penalized Empirical Likelihood Based Variable Selection for Cox's Proportional Hazards Model

Variable selection is an important problem in survival analysis. In practice, an investigator may take many covariates as potential risk factors at the initial stage of the modeling and the selection of significant risk factors plays a crucial role. We propose a nonparametric version of the penalized-likelihood variable selection method for Cox's proportional hazards model with right censoring, by replacing the parametric likelihood by the empirical likelihood. Our simulation studies shows that our proposed method is consistent and when a parametric model is available its performance is comparable with existing methods.