

Variables Selection and Classification in Linear Mixed-Effects Models

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Abstract

We consider linear mixed-effects models for clustering data, where the number of clusters is allowed to go to infinity with the sample size, and the within-cluster sample sizes are balanced. In literature, the statistical inference on linear mixed-effects models such as parameter estimation or model selection are based on an assumption that the explanatory variables are correctly specified in advance for fixed-effects and random-effects models, respectively. In our study, we consider selecting and classifying the explanatory variables for the fixed-effects and the random-effects models. We apply the generalized information criterion (GIC) for variable selection and classification of linear mixed-effects models. We show the consistency of GIC under some mild conditions.

Key words: Linear Mixed-Effects Models, GIC, Asymptotic Theory