

New variable selection for linear mixed-effects models

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Abstract In this paper, we consider how to select both the fixed effects and the random effects in linear mixed models. To make variable selection more efficient for such models in which there are high correlations between covariates associated with fixed and random effects, a novel approach is proposed, which orthogonalizes fixed and random effects such that the two sets of effects can be separately selected with less influence on one another. Also, unlike most of existing methods with parametric assumptions, the new method only needs fourth order moments of involved random variables. The oracle property is proved. the performance of our method is examined by a simulation study.

Keywords Linear mixed-effects models · Fixed and random effects selection · Orthogonality

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