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Dimension Reduction for High-Dimensional Regression by Iteratively Subgrouping Selection Procedure

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Abstract

This talk proposes an iteratively subgrouping selection procedure to recursively remove insignificant variables for high dimension regression models. In each iteration, we randomly split the current variables into several subgroups to ensure the validity from estimating the regression model to each subgroup. we remove those variables with lower p-values of each subgroup. We continue the iteration until the number of all the preserved variables is smaller than half the sample size. We then evaluate the stability of p-values for each remaining variable by estimating regression models over sub-datasets with increasing sample sizes. Finally, a standard selection approach such as AIC is applied to select the variables with stable performance of p-values. We expect the proposed method to achieve an efficient dimension reduction for high-dimensional regression models and preserve all the significant variables.

關鍵詞：p-values , high dimension , regression

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