Robust stability best subset selection for autocorrelated data based on robust location and dispersion estimator

ABSTRACT

Stability selection (multisplit) approach is a variable selection procedure which relies on multisplit data to overcome the shortcomings that may occur to single-split data. Unfortunately, this procedure yields very poor results in the presence of outliers and other contamination in the original data. The problem becomes more complicated when the regression residuals are serially correlated. This paper presents a new robust stability selection procedure to remedy the combined problem of autocorrelation and outliers. We demonstrate the good performance of our proposed robust selection method using real air quality data and simulation study.

Keyword: Robust stability; Autocorrelated data; Robust location; Dispersion estimator