

عنوان مقاله:

A heuristic algorithm to combat outliers and multicollinearity in regression model analysis

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خلاصه مقاله:

As known, outliers and multicollinearity in the data set are among the important difficulties in regression models, which badly affect the leastsquares estimators. Under multicollinearity and outliers' existence in the data set, the prediction performance of the least-squares regression method is decreased dramatically. Here, proposing an approximation for the condition number, we suggest a nonlinear mixed-integer programming model to simultaneously control inappropriate effects of the mentioned problems. The model can be effectively solved by popular metaheuristic algorithms. To shed light on importance of our optimization approach, we make some numerical experiments on a classic real data set as well as a simulated data set

کلمات کلیدی:

Condition number, linear regression, Penalty method, Metaheuristic algorithm, Nonlinear mixed-integer programming

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