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ASSESSMENT OF INFLUENCE OF INDIVIDUAL OBSERVATIONS ON PREDICTION MEAN SQUARE ERRORS IN VARIABLE SELECTION PROBLEMS

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Abstract: A new influence measure is proposed to assess the influence of individual observations on prediction mean square errors (PMSE) in variable selection problems. It is based on the estimated PMSE which consists of Cook's distance and Mallows' C_p statistic. Another interpretation of Cook's distance is also given through the expression of the new influence measure. Illustrative examples show the effectiveness of the new influence measure.

Key words: Cook's distance, influence measure, influential observation, Mallows' C_p statistic, regression diagnostics, sensitivity analysis

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