THE INTEGRATED MEAN SQUARED ERROR DESIGN CRITERION FOR A MULTIRESPONSE MODEL

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ABSTRACT

Kim and Draper (1994) used an extension of the Box and Draper (1959) integrated mean squared error (IMSE) criterion for choosing a design for a multiresponse experiment. Their results were limited to situations in which only two response variables and one control variable are considered in the fitted models. In addition, the variance-covariance matrix, $\Sigma$, of the response variables was assumed to be known. The present article provides a generalization of Kim and Draper’s results. A sequential procedure is developed for the generation of a design that minimizes a multiresponse version of the IMSE. The proposed methodology applies to any number of responses and control variables, and does not require knowledge of $\Sigma$. 

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