Statistical Data Mining

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Abstract

A modeling approach to optimize the multiresponse system is presented. The proposed approach aims to identify the setting of the input variables to maximize the degree of overall satisfaction with respect to all the responses based on fuzzy multiobjective optimization methodology. An exponential function form is suggested to simplify the membership function assessment process. The proposed approach does not require any assumptions regarding the form or degree of the estimated response models and is robust to the potential dependencies among response variables. It also takes into consideration the difference in the predictive capability as well as relative priority among the estimated response models. Comparisons with existing methods show that the proposed approach can flexibly incorporate the decision maker's preference and achieves a better balance among the responses.