

■ 연구논문 요약문

논문제목	Embedded variable selection method using signomial classification
게재정보	Annals of Operations Research, 254 (1), 2017.07.
개요	<ul style="list-style-type: none"> - A variable selection problem involves selecting, among a set of the n input variables, the variables that are desirable for predicting output. Variable selection plays an important role in data-mining applications because it can improve the prediction performance of classifiers, help constructing faster and more cost-effective classifiers, and sometimes provide a better understanding of the underlying process that generated the data. - There are three distinct approaches for variable selection in the literature: filters, wrappers, and embedded methods. In this paper, we proposed two embedded variable selection methods using signomial classification. We attempt to select, among a set of the input variables, the variables that lead to the best performance of the classifier.
연구결과	<ul style="list-style-type: none"> - We propose two variable selection methods using signomial classification. One method repeatedly removes variables based on backward selection, whereas the second method directly selects a set of variables by solving an optimization problem. - The proposed methods conduct variable selection considering nonlinear interactions of variables and obtain a signomial classifier with the selected variables. - Computational results show that the proposed methods more effectively selects desirable variables for predicting output and provide the classifiers with better or comparable test error rates, as compared with existing methods.
활용분야 및 기대효과	<ul style="list-style-type: none"> - The proposed methods select a set of the input variables in consideration of the nonlinear interactions of variables and provide, with those selected variables, a signomial classifier. The classifiers, as trained with the variables selected by the proposed methods, provide better or at least comparable average test error rates compared with the existing methods. - Thus, the proposed methods can be deemed viable tools for selection of variables that are suitable for output prediction.