Monotone classification via skyline-computation

Tomáš Horváth
Institute of Computer Science
Faculty of Science
Pavol Jozef Šafárik University in Košice

A classification problem where an ordering between class values is present is called monotone classification. This kind of classification is commonly used in real-life, for example grading of students, hotels, etc. Monotone classification methods mainly extend classification and regression trees. Moreover, these methods assume only linear ordering (<=) on attribute domains of objects.
An extended task of monotone classification is presented in the paper. It deals with partial orderings on attribute domains of objects. These orderings are a-priori learned by statistical methods. The learning of monotone classification rules is based on skyline computation - a well-known concept in database community.
The method was tested on benchmarks and was used for learning user preferences. The results of experiments are promising.