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J.-R. Cano, S. García



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Training Set Selection for Monotonic Ordinal Classification

J.-R. Cano^{a,*}, S. García^b

^a*Dept. of Computer Science, University of Jaén, EPS of Linares, Avenida de la Universidad S/N, Linares 23700, Jaén, Spain.*

^b*Department of Computer Science and Artificial Intelligence, University of Granada, 18071, Granada, Spain.*

Abstract

In recent years, monotonic ordinal classification has increased the focus of attention for machine learning community. Real life problems frequently have monotonicity constraints. Many of the monotonic classifiers require that the input data sets satisfy the monotonicity relationships between its samples. To address this, a conventional strategy consists of relabeling the input data to achieve complete monotonicity. As an alternative, we explore the use of preprocessing algorithms without modifying the class label of the input data.

In this paper we propose the use of training set selection to choose the most effective instances which lead the monotonic classifiers to obtain more accurate and efficient models, fulfilling the monotonic constraints. To show the benefits of our proposed training set selection algorithm, called MonTSS, we carry out an experimentation over 30 data sets related to ordinal classification problems.

Keywords:

Monotonic Classification, Ordinal Classification, Training Set Selection, Data Preprocessing, Machine Learning

*Corresponding author

Email addresses: jrcano@ujaen.es (J.-R. Cano), salvagl@decsai.ugr.es (S. García)

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