TEDU MATH SEMINARS

Independently Weighted Value Difference Metric (IWVDM)

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Abstract:

The majority of the difference metrics used in categorical classification algorithms do not take the dependence structure among attributes into account. Some of these metrics even make strong assumptions on attribute independence which are not realistic for many real-world datasets. In addition, these metrics do not consider attribute importance on the class variable. In this study, a new difference metric is proposed which is named as Independently Weighted Value Difference Metric (IWVDM). IWVDM includes an embedded Incremental Feature Selection (IFS) phase and a Data Compression (DC) phase. The proposed metric does not require attribute independence and it introduces a weighting procedure for attributes depending on the information that they possess on the class variable. A series of experiments is conducted using 30 UCI benchmark datasets for comparing the efficiency of IWVDM with Overlap Metric (OM), Value Difference Metric (VDM) and Frequency Difference Metric (FDM). Experimental results show the superiority of IWVDM over these three metrics.

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