

عنوان مقاله:

Unsupervised Fuzzy Rough set Feature Selection using Cluster Ensembles

محل انتشار:

چهاردهمین کنفرانس سیستم های فازی ایران (سال: 1394)

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خلاصه مقاله:

Nowadays, processing high dimensional data sets have received a great deal of attention due to their pervasive applications in many real world applications such as text processing, image retrieval and gene-expression analysis among many others. Since dealing with high dimensional data sets is computationally complex, several feature reduction techniques are proposed to simplify the calculation analysis. Among feature reduction techniques, feature selection methods are the most popular ones due to their ability to preserve the original meaning of features. Recently, feature selection using rough set theory has been in gravity of attention because of three main reasons: (1) it reveals the underlying information captured inside a data set, (2) it does not need any prior knowledge about data such as predefined thresholds or expert knowledge, (3) it can model data in terms of minimal knowledge. Also, since in many real world data mining applications class label of instances are rarely available which indicates the importance of unsupervised feature selection methods. Therefore, we present a novel feature selection scheme based on fuzzy rough set theory which is able to select appropriate features without having any knowledge of class label of instances. To show the effectiveness of the proposed method, some of the wellknown feature selection methods have been implemented and compared with our approach. Experimental results on varieties of data sets from UCI Repository database reveal the effectiveness of the proposed method in finding more informative subset of features along with achieving higher accuracy in comparison with the other rival methods.

کلمات کلیدی:

Feature Selection, Fuzzy-Rough Set, Cluster Ensemble, Clustering, Feature Selection

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