Abstract

Multi-label spatial classification based on association rules with Multi objective genetic algorithms (MOGA) is proposed to deal with multiple class labels problem which is hard to settle by existing methods. In this paper we adapt problem transformation for the Multi label classification. We use Hybrid evolutionary algorithm for the optimization in the generation of spatial association rules, which addresses single label. MOGA is used to combine the single labels into multi labels with the conflicting objectives predictive accuracy and Comprehensibility. Finally we built the classifier with a sorting mechanism. The algorithm is executed and the results are compared with Decision trees and Neural network based classifiers, the proposed method out performs the existing.
Reference

- Subhija Ponjavic, Elvir Ferhatbegović, Multi-Criteria Land Use Classification in GIS for Buildings Construction, 15th International Conference on Urban Planning and Regional Development in the Information Society, 18 - 20 MAY 2010, Reed Messe Wien, Vienna, Austria (pp.445-454)  
- Fadi A. Thabtah, Peter Cowling, Yonghong Peng, "MMAC: A New Multi-Class, Multi-Label Associative Classification Approach," ICDM, pp.217-224, Fourth IEEE International Conference on Data Mining (ICDM'04), 2004  
- Yin, X. and Han, J.: CPAR: Classification Based on Predictive Association Rules. Proc SIAM Int Conf on Data Mining (SDM'03), 2003, 331-335  

- Nadia Ghamrawi, Andrew McCallum, “Collective multi-label classification”, Proceedings of the 14th ACM international conference on Information and knowledge management, October 31-November 05, 2005, Bremen, Germany  
- Brinker, K., Furnkranz, J., Hullermeier, E.: A unified model for multilabel classification and
An Evolutionary Multi Label Classification using Associative Rule Mining for Spatial Preferences

- W. Li, J. Han, and J. Pei. CMAR: Accurate and efficient classification based on multiple-class association rule. In Proceeding of the First IEEE International Conference on Data Mining (ICDM’01), pp. 369-376, San Jose, CA, Nov. 2001.
- Xinqi Zheng, Lu Zhao, “Association Rule Analysis of Spatial Data Mining Based on Matlab”, Workshop on Knowledge Discovery and Data Mining , 2008 IEEE DOI 10.1109/WKDD.2008.21

**Index Terms**

Computer Science

Artificial Intelligence

**Key words**

Multi label Classification

Associative Classification

MOGA

HEA