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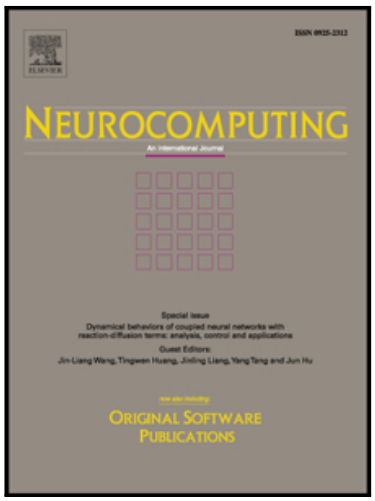

Multi-Label Classification by Exploiting Local Positive and Negative Pairwise Label Correlation

Jun Huang, Guorong Li, Shuhui Wang, Zhe Xue, Qingming Huang

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Multi-Label Classification by Exploiting Local Positive and Negative Pairwise Label Correlation

Jun Huang[a], Guorong Li[a,*], Shuhui Wang[b], Zhe Xue[a], Qingming Huang[a,b,*]

[a]*School of Computer and Control Engineering, University of Chinese Academy of Sciences, Beijing, 101408, China*
[b]*Key Lab of Intelligent Information Processing, Institute of Computing Technology, Chinese Academy of Sciences, Beijing, 100190, China*

Abstract

In multi-label learning, each example is represented by a single instance and associated with multiple class labels. Existing multi-label learning algorithms mainly exploit label correlations globally, by assuming that the label correlations are shared by all the examples. Moreover, these multi-label learning algorithms exploit the positive label correlations among different class labels. In practical applications, however, different examples may share different label correlations, and the labels are not only positive correlated, but also mutually exclusive with each other. In this paper, we propose a simple and effective Bayesian model for multi-label classification by exploiting Local positive and negative Pairwise Label Correlations, named LPLC. In the training stage, the positive and negative label correlations of each ground truth label for all the training examples are discovered. In the test stage, the k nearest neighbors and their corresponding positive and negative pairwise label correlations for each test example are first identified, then we make prediction through maximizing the posterior probability, which is estimated on the label distribution, the local positive and negative pairwise label correlations embodied in the k nearest neighbors. A comparative study with the state-of-the-art approaches manifests a competitive performance

*Corresponding author
Email addresses: huangjun13b@mails.ucas.ac.cn (Jun Huang), liguorong@ucas.ac.cn (Guorong Li), wangshuhui@ict.ac.cn (Shuhui Wang), xuezhe10@mails.ucas.ac.cn (Zhe Xue), qmhuang@ucas.ac.cn (Qingming Huang)

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