

## **Multi-label Classification based on GLMM**

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### **Abstract**

Recently, more and more researchers focus on solving multi-label classification problems. Traditional approaches aim to transform the original multi-label classification problem into several single-label classification problems and then assemble information from single-label classifier to predict multi-label results. However, these strategies will the loss of information among labels resulting in damaging the classification performance. In other words, the performance of the algorithms may be improved through using the information from the association among labels, since labels may not be independent but may be correlated. In this study, we proposed a novel hybrid label-based meta-learning algorithm for multi-label classification based on an ensemble of a cluster algorithm and generalized linear mixed model (GLMM). The numerical results show that the proposed algorithm outperforms others, especially for cases with relatively large number of labels.

Keyword: Clustering, generalized linear mixed model (GLMM), meta-learning, multi-label classification