Abstract

Classification predicts classes of objects using the knowledge learned during the training phase. This process requires learning from labeled samples. However, the labeled samples usually limited. Annotation process is annoying, tedious, expensive, and requires human experts. Meanwhile, unlabeled data is available and almost free. Semi-supervised learning approaches make use of both labeled and unlabeled data. This paper introduces cluster and label approach using PSO for semi-supervised classification. PSO is competitive to traditional clustering algorithms. A new local best PSO is presented to cluster the unlabeled data. The available labeled data guides the learning process. The experiments are conducted using four state-of-the-art datasets from different domains. The results compared with Label Propagation a popular semi-supervised classifier and two state-of-the-art supervised classification models, namely k-nearest neighbors and decision trees. The experiments show the efficiency of the proposed model.
References

Semi-supervised Classification: Cluster and Label Approach using Particle Swarm Optimization


**Index Terms**

Computer Science  
Information Sciences

**Keywords**

Swarm intelligence, Classification, Clustering, Semi-supervised, Cluster and label.