Abstract

Unsupervised classification is one of the primary research areas in data mining. Clustering algorithm partitions a data set into several groups based on the similarity. Quick reduct algorithm is used to find a minimal feature subset from the original feature space while retaining a suitably high accuracy in representing the original features. Fuzzy-C-Mean (FCM) clustering algorithm is one of the most popular clustering methods since it is an efficient, straightforward, easy to implement and sensitive to initialization. Since, the weakness is easily trapped in local optima. In this paper proposes hybrid Fuzzy c means with an evolutionary algorithm known as Ant Colony Algorithm (ACO) for clustering problem in order to flee from local optima by utilizing the merits of both algorithms FCM and ACO. The experimental results confirm the efficiency of the proposed method.

References

- Jeng-Ming Yih, Yuan-Horng Lin, Hsiang-Chuan Liu,&quot;Clustering Analysis Method based on Fuzzy C-Means Algorithm of PSO and PPSO with Application in Image Data,&quot;
Performance Analysis of Unsupervised Classification based on Optimization


- Selvi. V Dr. R. Umarani, &quot;Comparative Analysis of Ant Colony and Particle Swarm Optimization Technique,&quot; International Journal of Computer Applications (0975 – 8887)Volume 5– No. 4, August 2010.
- Zhang. M, Yao J. T, &quot;A Rough Sets Based Approach to Feature Selection, &quot;University of Regina, Saskatchewan.
- Qiang Niu, Xinjian Huang,&quot; An Improved Fuzzy C-means Clustering Algorithm based on PSO,&quot; Journal Of Software, Vol. 6, no. 5, may 2011.
- Chandra Mohan. B. Baskaran. R, &quot;A survey: Ant Colony Optimization based recent research and implementation on several engineering domain,&quot; 0957-4174, 2011 Elsevier Ltd.
- Yanfang Han,. Pengfei Shi, &quot;An improved ant colony algorithm for fuzzy clustering in image segmentation,&quot; 0925-2312 Elsevier doi:10. 1016/j. neucom. 2006. 10. 022,2006
- Chen Yanyun, Qiu Jianlin, Gu Xiang, Chen Jianping, Ji Dan Chen Li, &quot;Advances in Research of Fuzzy C-Means Clustering Algorithm&quot;, IEEE, 10. 1109/NCIS. 2011. 104.
- Sanya, Hainan China,&quot; SVM Combined with FCM and PSO for Fuzzy Clustering, Seventh International Conference on Computational Intelligence and Security&quot; IEEE, 978-0-7695-4584-4.
- Chun-Wei Tsai, Kai-Cheng Hu, Ming-Chao Chiang Chu-Sing Yang, &quot;Ant colony optimization with dual pheromone tables for clustering&quot; Fuzzy Systems (FUZZ), 2011 IEEE International Conference&apos;apos;, 978-1-4244-7315-1.

Index Terms
Computer Science  Artificial Intelligence

Keywords
Fuzzy Clustering  Ant Colony Optimization  Fuzzy C Means  Particle Swarm Optimization