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Application of ant K -means on clustering analysis. (English) Zbl 1085.68633
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Summary: This paper intends to propose a novel clustering method, Ant K -means (AK) algorithm. AK algorithm modifies the K -means as locating the objects in a cluster with the probability, which is updated by the pheromone, while the rule of updating pheromone is according to Total Within Cluster Variance (TWCV). The computational results showed that it is better than the other two methods, Self-Organizing feature Map (SOM) followed by K -means method and SOM followed by genetic K -means algorithm via 243 data sets generated by Monte Carlo simulation. To further testify this novel method, the questionnaire survey data for the plasma television market segmentation is employed. The results also indicated that the proposed method is the best among these three methods based on TWCV.

MSC:

- [68T05](#) Learning and adaptive systems in artificial intelligence
- [68T20](#) Problem solving in the context of artificial intelligence (heuristics, search strategies, etc.)
- [68P05](#) Data structures
- [68P15](#) Database theory

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Keywords:

[data mining](#); [clustering analysis](#); [ant colony optimization](#)

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