An efficient and effective immune based classifier

ABSTRACT

Problem statement: Artificial Immune Recognition System (AIRS) is most popular and effective immune inspired classifier. Resource competition is one stage of AIRS. Resource competition is done based on the number of allocated resources. AIRS uses a linear method to allocate resources. The linear resource allocation increases the training time of classifier. Approach: In this study, a new nonlinear resource allocation method is proposed to make AIRS more efficient. New algorithm, AIRS with proposed nonlinear method, is tested on benchmark datasets from UCI machine learning repository. Results: Based on the results of experiments, using proposed nonlinear resource allocation method decreases the training time and number of memory cells and doesn't reduce the accuracy of AIRS. Conclusion: The proposed classifier is an efficient and effective classifier.

Keyword: Artificial immune recognition system (AIRS); Artificial immune system (AIS); Artificial recognition ball (ARB); Clonal selection; EXPAIRS generates; Feature vector; Nonlinear resource allocation; Resource allocation