AN ARTIFICIAL IMMUNE NETWORK CLUSTERING ALGORITHM FOR MANGROVES REMOTE SENSING IMAGE

Yanmin LUO[1], Peizhong LIU[2*], Minghong LIAO[3]

[1] College of Computer Science & Technology, Huaqiao University, Xiamen, 361021, China

[2] College of Engineering, Huaqiao University, Fujian, Quanzhou 362021, China

[3] Software School, Xiamen University, Xiamen, 361005, China

Emails: pzliu@hqu.edu.cn

Submitted: Oct 4, 2013 ***Accepted: Feb. 5, 2014*** ***Published: Mar. 1, 2014***

Abstract- Because of not needing training samples and performing the classification just according to the inherent similarity of data in the multidimensional space, unsupervised classification method now gets more and more attention by remote sensing data analyst. Duo to the special growth environment of mangroves, field measurements is difficult to be done to obtain training samples. Therefore unsupervised method provides a good adjunct way for the classification of mangroves remote sensing image. This paper presents an immune network based unsupervised classification method, which is not necessary to define complex objective function. By arbitrarily selecting a certain number of data to be training samples, the proposed algorithm mines the prior knowledge of the samples and selects a few samples to constitute the initial nodes of immune network. After the evolutionary of the immune network, the clustering results are obtained, combined with nearest neighbor classification mechanism, the classification is performed. The experiment results show that the proposed algorithm has better overall stability and can get better clustering result for mangroves remote sensing image than traditional clustering methods.

Index terms*: Artificial immune network, unsupervised, remote sensing image, mangroves, classification.*