Abstract

The growth of intelligent intrusion and diverse attack techniques in network systems stimulate computer scientists and mathematical researchers to challenge the dangers of intelligent attacks. In this work, we integrate artificial immune algorithm with non-linear classification of pattern recognition and machine learning methods to solve the problem of intrusion detection in network systems. A new non classification algorithm was developed based on the danger theory model of human immune system (HIS). The abstract model of system algorithm is inspired from HIS cell mechanism mainly, the Dendritic cell behavior and T-cell mechanisms. Classification techniques using k-nearest neighbor (k-NN) or Gaussian Mixture (GMM) almost have the common sense that they believe the neighboring data. The algorithm tested use KDD
Cup dataset and the result shows a significant improvement in detection accuracy and reducing the false alerts.

**Reference**


**Index Terms**

Computer Science  
Network Security

**Key words**

Artificial immune system  
Classification  
Intrusion detection system