An efficient anomaly intrusion detection method with evolutionary kernel neural network random weights

ABSTRACT

Internet security requirements are increasing due to the growth of internet usage. One of the most efficient approaches used to secure the usage of the internet from internal and external intruders is Intrusion Detection System (IDS). Considering that using a combination of ANN and EA can produce an advanced technique to develop an efficient anomaly detection approach for IDS, several types of research have used ENN algorithms to detect the attacks. To enhance the efficiency of anomaly-based detection in terms of accuracy of classification, in this paper, the evolutionary kernel neural network random weight is proposed. This model is applied to the NSLKDD dataset, an improvement of the KDD Cup'99. The proposed method achieved 99.24% accuracy which shows that the novel algorithm suggested is more superior to existing ones as it provides the optimal overall efficiency.

Keyword: Intrusion detection systems (IDSs); Multilayer perceptron (MLP); Multiverse optimizer (MVO), NSL-KDD Dataset