Abstract

Various Artificial Intelligence (AI) based computing techniques for intrusion detection has been proposed using popular large-scale datasets like DARPA 98 and KDD Cup 99. However, AI based systems such as using representative instances are computationally inefficient. In this paper, the computationally efficient approach is proposed for anomaly detection by combining Partial Least Square (PLS) and technique of extracting representative instances. The PLS helps in feature selection and provides dimensionality reduction. Further, to decline the processing time the representative instances are properly chosen from the data set before classification. The classic instances are selected from the subsets of data which are obtained by Centroid-based partitioning technique. The system utilizes these paradigmatic instances as a training set. Finally, KNN classifier is trained using these paradigmatic instances. The results obtained using the proposed approach indicates a considerable fall in the processing time and space utilization.

Index Terms
Keywords

Intrusion detection, Artificial Intelligence, Feature selection, Preprocessing, Partial least square, Centroid-based classification