Abstract

Intrusion detection is a crucial part for security of information systems. Most intrusion detection systems use all features in their databases while some of these features may be irrelevant or redundant and they do not contribute to the process of intrusion detection. Therefore, different feature ranking and feature selection techniques are proposed. In this paper, hybrid feature selection methods are used to select and rank reliable features and eliminate irrelevant and useless features to have a more accurate and reliable intrusion detection process. Due to the low cost and low accuracy of filtering methods, a combination of these methods could possibly improve their accuracy by a reasonable cost and create a balance between them. In the first phase, two subsets of reliable features are created by application of information gain and symmetrical uncertainty filtering methods. In the second phase, the two subsets are merged, weighted and ranked to extract the most important features. This feature ranking which is done by the combination of two filtering methods, leads to higher the accuracy of intrusion detection. KDD99 standard dataset for intrusion detection is used for experiments. The better detection rate obtained in proposed method is shown by comparing it with other feature selection methods that are applied on the same dataset.
References


Feature Ranking in Intrusion Detection Dataset using Combination of Filtering Methods

Conference ACSC, Page(s) 181-191.

Index Terms

Computer Science

Algorithms

Keywords
Intrusion Detection  Feature Selection  Filtering  KDD99 Dataset