Comparison of Different Neural Networks Algorithm for Intrusion Detection System

Intrusion detection system(IDS) is a key element of any cyber security system. It alerts the system about any malicious packet which may try to intrude or attack the system. IDS systems exist in various forms - anomaly-based , signature-based and misuse-based IDS. Given the volume of ever increasing data coupled with variety and velocity over a complex web of networks ,it is pertinent to save the sensitive information and preserve the privacy of the data. There is an urgent need for a very fast and self learning IDS so that the user or organisations are secure and do not have to engage in dealing with the attacks on the system. In this study, we compare different neural network learning algorithms and propose a model for IDS. The different neural network learning algorithms used are:
Backpropagation, Resilient Backpropagation, Smallest Absolute Gradient and Smallest Learning Rate.
In my work, performance of different algorithms have been studied and evaluated on the NSL-KDD dataset.