Veeramreddy J. and Koneti M. Prasad proposed an Anomaly-Based IDS to develop generic meta-heuristic scale for both known and unknown attacks with a high

detection rate and low false alarm rate by adopting efficient feature optimization

techniques using a benchmark NSL-KDD dataset. Though existing intrusion detection

techniques address the latest types of attacks like DoS, Probe, U2R, and R2L,

reducing false alarm rate is a challenging issue with high classification accuracy.

Deep Learning approach for IDS in IOT network using Gated Recurrent Neural Networks(GRU) was proposed by Manoj K.P. This paper provides the concepts of machine learning and deep learning to implement robust solutions to protect from security threats as IOT generates humongous amount of heterogeneous data. GRU was evaluated on DARPA/KDD Cup '99 intrusion detection data set. However, GRU cannot be further used to categorise malicious attacks.

Jiong Z. and Mohammad Z. proposed network based IDS by applying one of the efficient data mining algorithms called random forests. In this paper, various approaches for handling imbalanced intrusions, selecting features, and optimizing the parameters of random forests are experimented over the KDD’99 datasets. However, this paper failed to carry out outlier detection using random forests in NIDS.

Luis M.T, Eduardo M., Mikel I. and Daniel M. proposed an anomaly-based IDS for IEEE 802.11 networks introducing a wireless IDS called S2WIDS. It is an anomaly based system that implements a multidisciplinary approach to detect the most common attacks in wireless environments and it may be able to fight some of the new threats that might arise in the future. However,it does not provide additional information about the AP(unauthorised wireless access point)to improve the corresponding part of the detection engine.

Nabila Farnaaz∗ and M. A. Jabbar proposed Random Forest Modeling for Network Intrusion Detection System to detect four types of attack like DOS, probe, U2R and R2L.Feature selection is applied on the data set to reduce dimensionality and to remove redundant and irrelevant features using NSL KDD data set. However, evolutionary computation needs to be applied as a feature selection measure to further improve accuracy of the classifier.