

Abstract

Artificial Intelligence (AI) is a branch of technology whose use is currently being discussed. Machine Learning (ML) is an Artificial Intelligence (AI) branch which has the ability of machines to access data with their own commands. There are various kinds of algorithms in machine learning. There are many types of attacks on network like . An example is DDoS. Distributed Denial of Service (DDoS) is one which is the way the attack works is by flooding network or server traffic. In this study, of the attacks on the network, the main focus of the DDoS attack is the internet of things network. (IoT). For that it is very important to detect the DDoS attack. So that the internet of things network used is not disrupted or problems occur. To detect the DDoS attack, an Intrusion Detection System (IDS) is needed. Machine learning is one of the algorithms that are widely used to create an IDS. In this study, the author uses an ensemble learning algorithm to implement it, namely ensemble learning (Bagging). For comparison, this study also explored using a voting classifier-based model. A comprehensive study has been carried out on the bagging model with an accuracy of 99,9% while the voting model has an accuracy of 97,1% and Gradient Boost has an accuracy 99%. Then the model is tested on the data simulation and gets 100% accuracy for the Bagging Classifier while the Voting Classifier and Gradient Boost models get 99% accuracy.

Keywords: Machine Learning, Distributed Denial of Service, Artificial Intelligence, Ensemble Methods, sequential ensemble learning, parallel ensemble learning