

An Autoencoder-Based Approach for DDoS Attack Detection Using Semi-Supervised Learning(Conference Paper)

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Abstract

A Distributed Denial of Service (DDoS) attack is a malicious cyber-attack strategy that seeks to disrupt normal traffic to a specific server by overwhelming it with an excessive amount of requests or data. In recent years, there has been a persistent increase in the use of DDoS attacks to exploit Internet networks. Although advanced intrusion detection and protection systems have been developed, network security remains a difficult problem and requires the development of effective defense mechanisms to detect these threats. Most of the current approaches are based on supervised learning which requires large and well-balanced datasets. Still, they struggle to identify new types of attacks. To address these issues, we propose a semi-supervised DDoS detection model using Autoencoder (AE) and Support Vector Machine (SVM). We compared our proposed approach with various supervised and semi-supervised models on the CICDDoS2019 dataset. Our proposed model outperformed the other models by achieving an accuracy of 99.57% and over 99% precision, recall, and F1 score. © 2023 IEEE.

Author keywords

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