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An Enhanced Algorithm for Detection of Intruders using Deep Learning

Aarthy R[1], Bhavanisha[2], Birundhavathi[3], Gowthami[4], Vishali[5]
Assistant Professor, CSE, Dhanalakshmi Srinivasan Engineering College, Perambalur[1]
Student, CSE, Dhanalakshmi Srinivasan Engineering College, Perambalur[2,3,4]

Abstract: *The increasing sophistication and frequency of cyber-attacks have made it necessary to develop more advanced network intrusion detection systems (NIDS). Traditional rule-based NIDS may not be effective against new and evolving attack strategies, hence there is a need for more intelligent and dynamic detection techniques. This paper proposes an enhanced AI-based NIDS using XGBoost, a popular machine learning algorithm for classification and regression problems. The proposed system is designed to detect network attacks in real-time by analyzing network traffic data and identifying patterns that indicate suspicious behavior. The system has data preprocessing, feature extraction, and XGBoost classification. The data pre-processing stage involves collecting and cleaning network traffic data to remove noise and irrelevant information. The feature extraction stage selects the most relevant features from the preprocessed data using correlation analysis. The XGBoost algorithm is used in the classification stage to train and test the system's predictive model. The model is trained on a labeled dataset of normal and attack traffic, and then used to classify new network traffic as normal or malicious. To evaluate the performance of the proposed system, experiments were conducted on a publicly available dataset. The results show that the XGBoost-based NIDS outperforms traditional rule-based NIDS in terms of detection accuracy, false positive rate, and execution time. This study demonstrates the effectiveness of using XGBoost in developing an AI-based NIDS for real-time network attack detection. The proposed system has the potential to enhance the security of computer networks by detecting and preventing cyber-attacks in real-time.*

Keywords: Fuel Delivery, Android Application, Mobile Application, Tracking System, Real Time Application.

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