Ministry of Higher Education and
Scientific Research
University of Babylon
College of Information Technology
Department of Information Security
Study: (Morning)

Network Intrusion Detection (NIDS) with Artificial Intelligence (AI)

A Graduate Project Submitted to the department of Information Security of the College of Information Technology, University of Babylon, in Partial Fulfillment of the Requirements for the Bachelor's degree in the Information Security of Information Technology.

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2023-2024

Abstract

In an era of increasing cyber threats, the need for robust Network Intrusion Detection Systems (NIDS) has become paramount. Traditional rule-based systems are proving inadequate in dealing with sophisticated and evolving attack techniques. This research proposes a novel approach to NIDS, leveraging the power of Artificial Intelligence (AI) and machine learning algorithms. By employing AI techniques such as deep learning, ensemble methods, and anomaly detection, our system aims to enhance the detection accuracy and efficiency while reducing false positives. The study evaluates the effectiveness of various AI algorithms in identifying and mitigating network intrusions. Experimental results demonstrate the superiority of AI-powered NIDS in detecting both known and unknown threats, thereby fortifying network security in an increasingly vulnerable digital landscape.