IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, September 2024

The Impact of Artificial Intelligence on Strengthening Cybersecurity Protocols

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Abstract: *To protect vital assets and data, cutting-edge intrusion detection systems (IDS) are required due to the increasing complexity of cyberattacks. The goal of the project is to investigate how Artificial Intelligence (AI) may improve the capacity of the Intrusion Detection System (IDS) to recognise and categorise network traffic and spot unusual activity. This article provides a brief introduction to IDS and AI, reviews the research, and emphasises the need of using sophisticated language models to improve cybersecurity. The study describes the approach used to evaluate AI's effectiveness in IDS. In order to provide a thorough assessment, the research also takes into account important performance indicators including reaction speed, false positive rate, and detection accuracy. Results show that artificial intelligence (AI) may significantly improve the accuracy of AI in identifying and thwarting cyberattacks. However, the research also highlights certain drawbacks and difficulties with integrating AI into IDS, namely computational cost and possible biases in training data. In addition to highlighting the potential of complex language models like ChatGPT to enhance cybersecurity solutions, this study provides insights into resolving related issues for a more resilient and successful defence against sophisticated cyberattacks.*

Keywords: Intrusion Detection Systems, Cybersecurity, AI

DOI: 10.48175/568