IJARSCT

ISSN (Online) 2581-9429

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

IJARSCT
Impact Factor: 7.301

Volume 3, Issue 1, April 2023

Proficient Intrusion Detection System using Machine Learning

Joel Emmanuel Mulepa[1] and Dr Glorindal Selvam[2]

Master of Computer Science, DMI-St. Eugene University, Zambia[1]
Supervisor, DMI-St. Eugene University, Zambia[2]
jmulepa@gmail.com[1] and glorygj@yahoo.com[2]

Abstract: *With the ever-growing dependence on computer networks for various purposes, network security has become a crucial aspect. Proficient Network Intrusion Detection System (PNIDS) is an essential component of network security infrastructure that helps to detect and prevent unauthorized access and malicious activities on the network. The primary objective of this project is to design and implement a Network Intrusion Detection System that can detect and prevent network attacks. The system will be built using various techniques such as rule-based detection, anomaly detection, and machine learning-based detection.*

Keywords: Proficient Network Intrusion Detection System

REFERENCES

[1]. S. Axelsson, "The base-rate fallacy and its implications for the difficulty of intrusion detection," ACM Transactions on Information and System Security (TISSEC), vol. 3, no. 3, pp. 186-205, 2000.

[2]. R. Sommer and V. Paxson, "Outside the closed world: On using machine learning for network intrusion detection," in Proceedings of the IEEE Symposium on Security and Privacy, 2010, pp. 305-316.

[3]. M. Alazab, R. Layton, J. J. Li, and S. Venkatraman, "Network intrusion detection systems: A survey and taxonomy," Journal of Network and Computer Applications, vol. 34, no. 4, pp. 1150-1169, 2011.

[4]. E. A. Hammad, M. A. M. Ahmed, and M. A. Mahmoud, "A review of intrusion detection systems: Concepts, classification and future directions," Journal of Network and Computer Applications, vol. 118, pp. 38-58, 2018.

[5]. S. S. Kumar and V. P. Sumathi, "Intrusion detection systems: A comprehensive review," in Proceedings of the International Conference on Computing and Network Communications, 2016, pp. 297-303.

[6]. J. Zhang, X. Chen, and T. Zhang, "A review of deep learning techniques applied to network intrusion detection," IEEE Access, vol. 5, pp. 21954-21972, 2017.

[7]. S. F. El-Kassas and T. F. Abdelzaher, "Anomaly detection in cyber physical systems: A network intrusion detection case study," IEEE Transactions on Dependable and Secure Computing, vol. 14, no. 1, pp. 48-62, 2017.

[8]. K. Zhao and W. Lu, "Real-time network intrusion detection using deep learning," in Proceedings of the International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage, 2016, pp. 216-227.

[9]. T. Anjum, I. Younas, M. R. Azhar, and M. A. Habib, "A deep learning-based intrusion detection system for network security," Journal of Network and Computer Applications, vol. 142, pp. 21-40, 2019.

[10]. T. Wang, Y. Zhang, and Y. Zhang, "A survey on deep learning for network intrusion detection," Neurocomputing, vol. 396, pp. 411-425, 2020.

[11]. S. S. Kumar, S. S. Subramanya, and V. P. Sumathi, "Intrusion detection system: A survey on machine learning and deep learning approaches," Journal of Ambient Intelligence and Humanized Computing, vol. 12, no. 7, pp. 6625-6651, 2021.

[12]. M. Khan and R. N. Jha, "A survey of the state-of-the-art in deep learning for network intrusion detection," Journal of Information Security and Applications, vol. 48, pp. 102427, 2019.

DOI: 10.48175/IJARSCT-9072

[13]. T. A. Alghamdi, M. S. Aljahdali, A. Z. Alswedan, and M. A. Siddiqui, "A review of intrusion detection systems using machine learning," in Proceedings of the International Conference on Machine Learning and Data Science, 2019, pp. 141-151.

[14]. H. K. Al-Mashhadani and A. H. Al-Najjar, "Survey on intrusion detection system techniques and challenges," Journal of Physics: Conference Series, vol. 1467, no. 1, pp. 012056, 2020.

[15]. S. Ayubi and R. A. Khan, "Intrusion detection system using machine learning algorithms: A review," in Proceedings of the IEEE 5th International Conference on Computer and Communication Systems, 2020, pp. 284-289.