Machine Learning Techniques in Network Security: A Comprehensive Survey, Performance Analysis, and Time Complexity Comparison

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# ABSTRACT

The web has transformed into a fundamental variable for all locales of the state- of-the art world. The world is ending up being progressively dependent on the web for its standard of living. The rising dependence on the web has further expanded the risks of toxic exposure. In light of the advancement of online security bets, network wellbeing has turned into the most pressing part in the computerized world to battle against every single computerized risk, attacks, and cheats. The extension of the internet is profoundly related to the increasing chance of being pursued by wearisome digital dangers. The goal of this overview is to give a concise survey of various AI (ML) strategies to make quick work of the relative multitude of improvements made in location techniques for potential network protection. These online protection risk discovery strategies primarily include extortion recognition, interruption location, spam discovery, and malware identification. In this paper, we expand upon the current literature on the uses of ML models in online protection and give an exhaustive survey of ML methods in network safety. As far as we could possibly know, we have prepared the principal endeavor to give a correlation of the time intricacy of generally utilized ML technique in network safety. “We thoroughly examined each classifier's performance; taking into account commonly used datasets and advanced risk subspaces”. This research paper defines a concise demonstration of simulated intelligence technique other than generally used protection datasets. Despite meeting every of the fundamental requirements, network security has its limitations. Furthermore, challenges This work, in like manner, explains the huge current hardships and cutoff points looked at during the usage of man-made intelligence techniques in network assurance.