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Patent Search

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Abstract:

The present invention relates to a system and method for automated cybersecurity threat detection and mitigation using artificial intelligence. The system comprises a data collection module for aggregating network traffic, endpoint activity, and user behavior; an AI-based detection engine employing supervised, unsupervised, and deep learning models to identify both known and unknown threats; a threat intelligence integrator for enhancing detection accuracy through external feeds; and an automated mitigation module for executing countermeasures such as IP blocking, process termination, and device isolation. A feedback and reinforcement learning loop continuously refines detection models, thereby reducing false positives and adapting to evolving attack patterns. The invention provides real-time, self-adaptive cybersecurity defense applicable to enterprise networks, cloud infrastructures, and IoT ecosystems.

Complete Specification

Description: The present invention relates to the field of cybersecurity and information technology, and more particularly to an artificial intelligence (AI)-based system and method for automated threat detection and mitigation in computer networks, enterprise infrastructures, cloud environments, and Internet of Things (IoT) ecosystems. The invention employs adaptive machine learning models, intelligent threat analytics, and real-time automated response mechanisms to identify, classify, and neutralize evolving cyber threats with minimal human intervention.

BACKGROUND OF THE INVENTION

The following description of related art is intended to provide background information pertaining to the field of the disclosure. This section may include certain aspects of the art that may be related to various features of the present disclosure. However, it should be appreciated that this section be used only to enhance the understanding of the reader with respect to the present disclosure, and not as admissions of prior art.

Cybersecurity has become a critical domain as enterprises, governments, and individuals increasingly rely on digital infrastructures for communication, commerce, and data storage. With the proliferation of cloud computing, mobile devices, and IoT systems, attack surfaces have expanded significantly, providing malicious actors with more opportunities to exploit vulnerabilities. Traditional defense mechanisms, while useful, often fail to keep pace with the dynamic nature of modern cyber threats.

Conventional security solutions such as firewalls, intrusion detection systems, and antivirus software primarily depend on predefined signatures and static rules. While effective against known attacks, these tools are unable to detect novel or zero-day exploits, as they lack the adaptive intelligence required to respond to new attack strategies.

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