Scienxt Journal of Recent Trends in Information Technology
Volume-2 || Issue-1 || Jan-Apr || Year-2024 || pp. 59-68

Enhancing blockchain security through anomaly detection: A machine learning approach

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https://doi.org/10.5281/zenodo.10153457

Abstract:

Blockchain technology has emerged as a transformative force in the digital landscape, facilitating secure and transparent transactions across a decentralized network. Despite its inherent security features, blockchain systems are not impervious to anomalies and malicious activities. Anomaly detection using machine learning has become a critical tool for safeguarding blockchain networks and preserving their integrity. This project delves into the application of machine learning techniques for anomaly detection in blockchain systems, specifically employing the XGBoost classifier to identify anomalous patterns in blockchain data. The project achieved an accuracy of 84%, demonstrating the efficacy of machine learning in identifying and mitigating potential threats to blockchain security. This study underscores the significance of machine learning in enhancing the resilience and trustworthiness of blockchain networks, paving the way for a more secure and reliable digital ecosystem.

Keywords:

Anomaly Detection, Blockchain, Machine Learning, XGBoost, Security, Fraud Detection.