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Malware Detector using Machine Learning

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Abstract: *Malware is a huge cybersecurity problem due to the exponential growth of digital technologies. It causes global financial and data losses. Traditional signature-based and heuristic detection methods fail to detect new and complicated malware strains. In recent years, machine learning (ML) has become a strong alternative, identifying both known and unknown malware by learning patterns from static and dynamic properties. This paper examines ML malware detection using past research and data. It covers supervised, unsupervised, and deep learning models, their assessment criteria, and practical applications. The article addresses dataset imbalance, generalisation, and explainability as well as future prospects including hybrid modelling and privacy-preserving techniques. This secondary research stresses the potential of ML to transform malware detection systems and the need for continued progress to combat sophisticated cyber attacks.*

Keywords: malware detection, machine learning, cybersecurity, deep learning, malware datasets, classification algorithms, anomaly detection, real-time detection

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