**Topic: Malware Detection using machine learning**

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**Abstract**

In the rapidly evolving landscape of cybersecurity, traditional signature-based malware detection methods are increasingly inadequate against sophisticated threats. This project explores the application of machine learning algorithms to enhance malware detection capabilities. By leveraging techniques such as Decision Trees (DT), Convolutional Neural Networks (CNN), and Support Vector Machines (SVM), we aim to identify and classify malware with high accuracy. Our approach involves training these models on a comprehensive dataset of benign and malicious software samples, extracting relevant features, and evaluating performance based on detection accuracy and false positive rates. Preliminary results indicate that machine learning models, particularly CNN and DT, achieve detection accuracies exceeding conventional techniques, significantly outperforming traditional methods. This study underscores the potential of machine learning to provide robust, adaptive defenses against evolving malware threats.