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A Study of Permission-Based Malware Detection Using Machine Learning

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Abstract : Malware is becoming more prevalent, and several threat categories have risen dramatically in recent years. This paper provides a bird's-eye view of the world of malware analysis. The efficiency of five different machine learning methods (Naive Bayes, K-Nearest Neighbor, Decision Tree, Random Forest, and TensorFlow Decision Forest) combined with features picked from the retrieval of Android permissions to categorize applications as harmful or benign is investigated in this study. The test set consists of 1,168 samples (among these android applications, 602 are malware and 566 are benign applications), each consisting of 948 features (permissions). Using the permission-based dataset, the machine learning algorithms then produce accuracy rates above 80%, except the Naive Bayes Algorithm with 65% accuracy. Of the considered algorithms TensorFlow Decision Forest performed the best with an accuracy of 90%.

Keywords : android malware detection, machine learning, malware, malware analysis
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