

Abstract

Android development is accelerating, fueling the rise of Android malware. Android malware data is highly dimensional and requires algorithms to detect it. Support Vector Machines (SVM) is a machine learning algorithm well suited for Android malware data. However, because SVM requires solving a quadratic programming (QP) optimization problem, it is limited in computation time for large datasets. In this study, we propose a Parallel Support Vector Machine (PSVM) with Sequential Minimal Optimization (SMO) decomposition method for detecting or classifying Android malware using the DREBIN dataset. The SMO algorithm is guaranteed to solve the QP using decomposition techniques. H. Tasks distributed across multiple processors running in parallel. Performance comparison of parallel SVM-SMO 4-decomposition model and non-parallel SVM-SMO and evaluation based on feature analysis using correlation coefficients. When testing performance metrics and function accuracy, 14 functions are the best with an average accuracy of 78%. When testing the performance of the model, the best feature is 27 features with an average acceleration of 9.58 and an efficiency of 2.39 on the linier kernel.

Keywords: DREBIN, SVM, PSVM, SMO, Decomposition, Correlation Coefficient.