

Software Watermarking Using Fixed Size Encoding and Random Dummy Method Insertion

Abstract

The rise of software piracy has become rampant and a major concern among software developers. One of the techniques that can be used to discourage piracy is watermarking, by embedding developer's watermark into software which can later be extracted to prove ownership. During the last few years, different algorithms were produced and developed to hide the watermark inside software. This paper enhances dummy method insertion technique in embedding and recognizing the watermark in Java class files. The enhancement includes the use of fixed size encoding scheme and random dummy method insertion. The proposed fixed size encoding scheme used hash function that can produce a fixed size watermark bit sequences. Random dummy method insertion selects a dummy method from a collection of dummy methods randomly. Finally, this study analyzes the enhancement of dummy method insertion technique using two different measures, namely data-rate and resilience of the watermarking algorithm. In terms of data rate, the results show that encoded watermark for proposed encoding scheme is always fixed even though size of watermark character is increased. In terms of resilience, experimental results show no similarity between class files and thus survived from collusion attack compared to previous method.