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Detecting Anti-Adblockers using Differential Execution Analysis

Master's thesis
in COMPUTER SCIENCE

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Supervisor's statement

Hereby I confirm that the presented thesis was prepared under my supervision and that it fulfils the requirements for the degree of Master of Computer Science.

Date Supervisor's signature

Author's statement

Hereby I declare that the presented thesis was prepared by me and none of its contents was obtained by means that are against the law.

The thesis has never before been a subject of any procedure of obtaining an academic degree.

Moreover, I declare that the present version of the thesis is identical to the attached electronic version.

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Abstract

Ads are the main source of income of numerous websites. However, some of them are fairly annoying which causes many users to use adblocking browser extensions. Some services, in turn, use specialized scripts to detect such plug-ins and silently report them or block some content as a punishment. The goal of this thesis is to build a pipeline for detecting such scripts based on a differential execution analysis, a method provided by other authors in 2018. Such a mechanism can be used later to analyze the prevalence of anti-adblockers on Polish websites or to build an extension capable of circumventing such scripts.

Keywords

dynamic analysis, differential execution analysis, javascript, anti-adblockers, ads

Thesis domain (Socrates-Erasmus subject area codes)

11.3 Informatics, Computer Science

Subject classification

Software and its engineering. Dynamic analysis

Tytuł pracy w języku polskim

Wykrywanie skryptów blokujących rozszerzenia typu AdBlock w przeglądarkach

Contents

Introduction

TODO:

Chapter 1

Basic concepts

1.1. Definitions

- Execution event – each occurence of control executing some statement, entering or leaving a control structure etc.
- Execution trace – a series of execution events collected during program execution. It is dependent both on program structure and it's input (also implicit such as randomly generated numbers)
- Execution index
- Stable marriage problem

1.2. JavaScript execution model

Chapter 2

Related work

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Chapter 5

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5.1.1. Optimizations

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5.3. Noise filtering

Chapter 6

Evaluation

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