Date: 20 November, 2024

To

The Chairman

Examination Committee of Master's Program 2023

Institute of Information Technology

Jahangirnagar University

Savar, Dhaka

Subject: Thesis/Project Synopsis

Proposed Title: A survey of malware detection using deep learning.

Abstract: The problem of malicious software (malware) detection and classification is a complex task, and there is no perfect approach. There is still a lot of work to be done. Unlike most other research areas, standard benchmarks are difficult to find for malware detection. This paper aims to investigate recent advances in malware detection on MacOS, Windows, iOS, Android, and Linux using deep learning (DL) by investigating DL in text and image classification, the use of pre-trained and multi-task learning models for malware detection approaches to obtain high accuracy and which the best approach if we have a standard benchmark dataset. We discuss the impact of adversarial attacks on deep learning models, negatively affecting their generalization capabilities and resulting in poor performance on unseen data. We examine eight popular DL approaches on various datasets. This survey will help researchers develop a general understanding of malware recognition using deep learning.

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