Salvatore Maccarrone

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Summary

Recently, I completed my MSc. in Computer Science and Engineering with a specialization in Cyber Security.

I have gained one year of valuable experience as a Research Collaborator, during which I applied Machine Learning concepts to the field of Cyber Security. As a result of this experience, I have developed a Python framework that incorporates several x86_64 assembly components. Furthermore, I have authored an academic article that is currently undergoing review for presentation at a prestigious Computer Security Conference. One notable achievement of my work is the significant reduction of 90% in the number of modifications required when compared to similar state-of-the-art approaches.

Experience

Researcher
Politecnico di Milano
Apr 2022 - May 2023 (1 year 2 months)
Research project with a colleague on state-of-the-art Windows malware detection systems: We devised a novel strategy to deceive machine learning-based detection systems that utilize API call sequences as features.
By employing our framework, we achieved an impressive success rate of up to 99% at the feature level against state-of-the-art deep neural network models, while minimizing the necessary modifications. On average, we reduced the number of modifications required by current state-of-the-art approaches by 90%.
The final outcome is a Python framework capable of modifying Windows PE malware samples using multiple x86_64 assembly stubs that we have developed.

Education

Politecnico di Milano
Master's Degree, Computer Science and Engineering
2020 - 2023
Final Thesis: Research Project at NECSTLab
Topics: Machine Learning, Malware Dynamic Analysis, PE Files
Title: An End-To-End Framework for Malware Behavior Obfuscation
Thesis evaluation: full marks.

Final result: 109/110

Università di Catania
Bachelor's Degree, Computer Science and Engineering
2016 - 2019

Final result: 110/110 with honors

Licenses & Certifications

B2 First - Cambridge University Press & Assessment

Skills

Linux • Cybersecurity • Malware Analysis • Network Security • x86 Assembly • Teamwork • Python (Programming Language) • Information Security • C (Programming Language)

Honors & Awards

Graduated with Honors - Università di Catania

Oct 2019

Received honors for outstanding academic performance and results during my Bachelor's degree. This recognition highlights my dedication, commitment, and excellence in my studies, reflecting my strong work ethic and intellectual achievements throughout the course.