Gabriele Digregorio

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Education

2023 – now   **Ph.D. Computer Science and Engineering**, Politecnico di Milano, Milano.

Advisors: Stefano Zanero, Stefano Longari

2020 – 2023   **M.Sc. Computer Science and Engineering**, Politecnico di Milano, Milano.

Thesis title: Tarallo: An End-to-End Framework for Malware Behavior Obfuscation.

Advisor: Michele Carminati

Grade: 110/110 cum laude.

2017 – 2020   **B.Sc. Computer and Automation Engineering**, Politecnico di Bari, Bari.

Thesis title (original): Analisi delle prestazioni della tecnologia NB-IoT adattata alle comunicazioni satellitari.

Thesis title (eng): Analysis of the performance of NB-IoT technology adapted for satellite communications.

Advisor: Gennaro Boggia

Grade: 110/110 cum laude.

Experience

Teaching Activities

Sep 2024 - Dec 2024   **Supplementary Education Activities - Politecnico di Milano** MSc course: Cyber Security Technologies, Procedures, and Policies - Cross-institutional study L. Bocconi, Politecnico di Milano.

Feb 2024 - May 2024   **Supplementary Education Activities - Politecnico di Milano** MSc course: Computer Security (UIC 587).

May 2024   **Teaching - Fondazione Politecnico di Milano** Summer school Tech-Camp@POLIMI: the first project in Italy to bring high school students closer to technology courses - **Cybersecurity** Track.

Experience (continued)

Mar 2024 **Teacher - MADE S.c.a.r.l.** Cyber and Industrial Security course - Introduction to Computer Security.

Oct 2023 **Co-Teacher - Cefriel S.c.a.r.l.** Master Deloitte Security course.

Talks and Seminars

Jun 2024 **Speaker** at the IEEE 99th Vehicular Technology Conference. VTC2024-Spring. Marina Bay Sands Hotel, Singapore, Singapore. "Evaluating the Impact of Privacy-Preserving Federated Learning on CAN Intrusion Detection".

Jul 2024 **Speaker** at the 21st Conference on Detection of Intrusions and Malware & Vulnerability Assessment. DIMVA '24. EPFL, Lausanne, Switzerland. "Tarallo: Evading behavioral malware detectors in the problem space"

Advisory Activities

2023 - now **Co-Advisor** for M.Sc.Theses.

Reviewer Activities

Reviewer for "Journal of parallel and distributed computing".

Research Publications

Conference Proceedings

1. **G. Digregorio**, E. Cainazzo, S. Longari, M. Carminati, and S. Zanero, "Evaluating the impact of privacy-preserving federated learning on can intrusion detection," in *2024 IEEE 99th Vehicular Technology Conference (VTC2024-Spring)*, 2024.

2. **G. Digregorio**, S. Maccarrone, M. D'Onghia, *et al.*, "Tarallo: Evading behavioral malware detectors in the problem space," in *International Conference on Detection of Intrusions and Malware, and Vulnerability Assessment*, Springer, 2024, pp. 128–149.

Associations & Activities

I actively participate in Capture The Flag (CTF) competitions with the **mhackeroni** and **Tower of Hanoi** teams. A CTF is a cybersecurity competition where participants have to find a hidden string (the flag) within purposefully vulnerable programs or websites. During CTFs, I usually challenge myself by reversing or exploiting binaries, among other tasks.

Associations & Activities (continued)

2022 - now   ▮ **mhackeroni**, union of several CTF Italian teams.

Web-site: `https://mhackeroni.it`.

Played CTFs:

- **Hack-A-Sat 4** by the Air Force Research Laboratory (the primary scientific research and development center of the United States Department of the Air Force) - World's First CTF in Space - **1st Worldwide Place**,
- **DEF CON 32 Finals** and **DEF CON 31 Finals**, the most prestigious CTF event in the world,
- many others.

2021 - now   ▮ **Tower of Hanoi**, CTF team from Politecnico di Milano.

Web-site: `https://toh.necst.it`.

Played CTFs:

- Reply CTF 2023 - 3rd place,
- CSAW 2022 - 1st Place in Europe,
- MoleCon CTF 2022 - 2nd place,
- Reply CTF 2022 - 2nd place,
- many others.

2024 - now   ▮ **CyberChallenge**, CTF Training Program by Cybersecurity National Lab.

Instructor at Politecnico di Milano's Section.

Web-site: `https://cyberchallenge.it`

Projects

2023 - now   ▮ **Maintainer of libdebug**, an open-source Python library to automate the debugging of binary executables, used by experts worldwide.

GitHub: `https://github.com/libdebug/libdebug`

PyPI: `https://pypi.org/project/libdebug/`

Courses

2023   ▮ **International Summer School on Security & Correctness**, at Graz University of Technology - Austria.

2022   ▮ **CyberChallenge**, CTF Training Program by Cybersecurity National Lab.

2021   ▮ **Cyber Security Academy**, with Reply, WindTre, Intesa Sanpaolo, BV TECH.

Languages

- **Italian**
- **English**