UMBERTO DELLA MONICA

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Website: https://github.com/UmbertoDellaMonica

Gender: Male   **Date of birth:** 02/12/2000   **Nationality:** Italian

ABOUT MYSELF

I'm a graduate student in Computer Science and i'm studying Cybersecurity at the University of Salerno. My passion lies in the realms of Cybersecurity and IoT. I'm highly determined and endlessly curious, constantly seeking to enhance my skills and knowledge in the field of computer science.

EDUCATION AND TRAINING

[Current]

Laurea Magistrale Informatica curriculum Sicurezza Informatica, LM-18

Università degli studi di Salerno

[11/09/2019 – 28/07/2024]

Laurea Triennale Scienze e Tecnologie Informatiche, L-31

Università degli Studi di Salerno

Country: Italy | | **Final grade:** 106 | **Level in EQF:** EQF level 6 | **Type of credits:** CFU | **Number of credits:** 180

[06/09/2014 – 27/08/2019]

Diploma di Scuola Secondaria di secondo grado Liceo Scientifico Sezione Scienze Applicate

Liceo Scientifico Andrea Genoino

Address: 84013, CAVA DE' TIRRENI, Italy | | **Final grade:** 93

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2   **READING** B2   **WRITING** B2

SPOKEN PRODUCTION B2   **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

SKILLS

Programming Language & Frameworks

Python | Dart | Java | JavaScript | Assembly | C | Flutter | Spring | Angular | C#

Reverse Engineering & Firmware Analysis

OpenOCD | Cutter | Ghidra | Radare2 | Rizin | objdump | Binwalk | hexdump | Bulk Extractor | Firmware-Mod-Kit | Cross-Compilation toolchains

Network Security Analysis

Wireshark | nmap | traceroute | tcpdump

Hardware Communication Interface

UART | SPI | SWD | JTAG | I²C

PROJECTS

[10/2024 – 03/2025] **Travel Router with Raspberry Pi 4 - AppChallenge2024/2025**

Designed a secure travel router by customizing OpenWRT and integrating AdGuardHome for ad-blocking and DNS filtering. Developed a lightweight IDS/IPS in Python and exposed network insights via a Flutter-based mobile app. Utilized USB-WiFi adapters for flexible network connectivity and FastAPI for backend communication.

Tools: Wireshark, nmap, tcpdump, FastAPI, Flutter.

Team project focused on providing real-time threat detection and private browsing on public networks under the guide of LinearIT.

Link: https://github.com/orgs/DefNet-Enterprise-Mobile-Application/repositories

[09/2023 – 02/2024] **JTAG Firmware Extraction & Reverse Shell Injection**

Identified JTAG pins and performed a raw firmware dump using a JTAG programmer and OpenOCD. Conducted static firmware analysis using Ghidra and radare2 to detect known CVEs and CWE patterns. Developed a custom reverse shell exploit in C and Python, cross-compiled using a dedicated toolchain in docker.

Tools & hardware: JTAGulator, Attify Badge, hexdump, OpenOCD,multimeter, python, Ghidra, radare2, Docker.

Individual project demonstrating firmware-level access and vulnerability exploitation on embedded devices.

[04/2025 – 04/2025] **CTF Challenge - Morph (CyberChallenge.IT)**

Reverse engineered an obfuscated binary featuring ASLR and memory protection mechanisms. Applied tools like Cutter, Rizin, radare2, and Ghidra to analyze control flow and bypass memory randomization.

Tools: Ghidra, radare2, Cutter, Rizin, python.

Collaborative project within a CTF team, resulting in the successful resolution of the challenge.

Link: https://github.com/Reverse-Engineering-Team-2024-2025/Morph-CTF

WORK EXPERIENCE

STMicroelectronics

City: Napoli | **Country:** Italy

[15/04/2024 – 15/07/2024] **Penetration Tester Hardware**

Development of a penetration test suite in compliance with ISO 21434.

T.&C. Systems Group

City: Napoli | **Country:** Italy

[04/09/2024 – 04/12/2024] **Web Software Developer**

Development of a web application using a microservices architecture.

Technologies: Spring Framework, JWT library, PostgreSQL, Redis, Maven, JUnit, Jacoco, Docker, Git.

PUBLICATIONS

[2025] **Threat Analysis and Risk Assessment (TARA) Analysis of an Autonomous Emergency Braking (AEB) System**

Presented a comprehensive TARA of the AEB system using the STRIDE threat model to identify and mitigate critical cybersecurity risks, aligned with ISO/SAE 21434 standards.

Link: https://www.mdpi.com/2076-3417/15/3/1400

HOBBIES AND INTERESTS

Photography

I am passionate about photography and have often collaborated with local shops to cover events. Thanks to my high school experience, I had the opportunity to organize photo exhibitions and events, some of which gained visibility in local newspapers further fueling my interest and skills in this field.

Link: https://www.instagram.com/umberto_dellamonica_photo?igsh=MmtzeHM2N2FiYWJq

Sport

I currently practice competitive target shooting. In the past, I also competed in karate at a regional level. These athletic experiences have helped me develop discipline, focus, and the ability to face challenges with determination.

Cava De' Tirreni(SA), 08/05/2025

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