

# Antonio Battaglia

Messina, Italy | antoniobattaglia01@gmail.com | +39 327 589 7526 | antubattle.dev

linkedin.com/in/antonio-battaglia-24a20022b | github.com/AntuBattle

## Professional Summary

National Cyberchallenge.IT finalist and embedded-systems engineer currently pursuing a Master's in Computer Engineering. Proven expertise in penetration testing and cybersecurity, machine learning —achieving 98% detection accuracy IDS— and in designing STM32-based firmware for Formula SAE applications.

**Spoken Languages:** Italian (Native), English (C1 Advanced), Japanese (N3 level), Spanish (Conversational).

## Education

Università degli Studi di Messina, Italy, MS in Computer Engineering Sept 2024 – Current

- Current GPA 4.0, W.S.A. 29.0
- **Coursework:** IoT Development, Machine Learning, Deep Learning, Cybersecurity, Network Science.

Università degli Studi di Messina, Italy, BS in Computer and Electronics Eng. Sept 2024

- Grade 108/110 GPA: 3.9/4.0
- **Coursework:** Object Oriented Programming, Design Patterns, OS and Computers Architecture, Models Design, Simulation and Control, Computer Networks, Database and Management Systems.

## Experience

Machine Learning Engineer, RETROSPECT Project – Messina, IT Dec 2024 - Present

- **Led development** of a machine-learning-driven IDS for ModBus/TCP and CanBus vulnerabilities, **achieving 98% detection accuracy** while maintaining **inference time lower than 24ms**.
- **Collected** one of the most **complete hardware fingerprint signals datasets** available online and logical message patterns to harden SCADA communications.
- **Processed 10000+ signals** by downsampling and refining data to **enhance and maximize training efficiency up to 80%**

Firmware Developer, Zancle E-Drive Formula SAE Team – Messina, IT Apr 2024 – Sept 2024

- **Designed the UI and the firmware** for the STM32 dashboard that is now **utilized** in the university's **official Formula SAE** team's car.
- Enabled **real-time display** of tire temperature, engine status, and lap times, **dramatically improving driver situational awareness**.
- **Integrated CAN bus data streams** and implemented fail-safe mechanisms in embedded C **allowing faster communication** of information to the driver.

Data Scientist & ML Engineer, Shibaura Institute of Technology, SanTO Project – Tokyo, JP Oct 2023 - Feb 2024

- Architected framework using **Pandas** to **train a large language model** that **enhanced SanTO's context awareness by 90%+**.
- **Enhanced SanTO's response capabilities by 80%** according to user polls, through iterative fine-tuning.
- **Collaborated on GitHub Actions CI/CD Pipeline** to integrate the LLM into a multilingual advisory system.

## Projects

PLC19R Intrusion Detection System PLC19R\_Dataset\_IDS

- **Developed an intrusion detection system** on Raspberry Pi over differential signal communications to be run on-premise for hardware signal detection **achieving 99% accuracy and 93% recall**.
- **Technologies:** Python, Wireshark, C++, MQTT, Linux, Burp Suite, Tcpdump

## Technologies

**Languages:** Python, Javascript, Dart, Kotlin, Java, C++, C#, C, Assembly.

**Technologies:** Linux, Docker, Burp Suite, Wireshark, StmCube, AWS, Kubernetes, Ansible, Terraform, Gobuster, Whois, Ghidra, MQTT, SPI, UART, RTOS.

## Publications

Sacred or uncanny? Exploring visitors' reaction to a robotic saint in exhibition Aug 2024

Gabriele Trovato, **Antonio Battaglia**, Rafael Leon, Ujwal Kumar Franco Pariasca Trevejo

10.1109/RO-MAN60168.2024.10731471