Christian Sassi

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Education

Master's Degree in Computer Science, Cybersecurity - University of Trento — Trento, Italy
Expected graduation in December 2025. — *Sep. 2023 – Present*

Bachelor's Degree in Computer Engineering - University of Trento — Trento, Italy
Graduated with a final grade of 108 out of 110. — *Sep. 2020 – Sep. 2023*

Experience

Researcher Intern – Cybersecurity — Mar. 2025 – Present
Fondazione Bruno Kessler (FBK) — *Trento, Italy*

- Adapted the **DAICS** framework into a **distributed federated learning** pipeline for anomaly detection in **Industrial Control Systems (ICS)**.
- Integrated **adaptive aggregation** and **client selection** from the **FLAD** framework, improving overall training efficiency.
- Evaluated on **SWaT** dataset; achieved **comparable performance** to the centralized baseline while preserving data privacy.
- Developed and tested deep learning models using **PyTorch**, **NumPy**, and **Pandas**.

Software Engineer Intern – Embedded Systems — Feb. 2023 – Jun. 2024
University of Trento — *Trento, Italy*

- Validated **SPARK SR1020 UWB IoT devices** through specification-based testing, ensuring system reliability and integration readiness.
- Optimized **C-based firmware** for real-time **UWB communication**, reducing response time by **50%**.
- Developed **Python tools** to analyze audio packet behavior, improving debugging and performance tuning.
- Collaborated with a **10-person multidisciplinary team** to develop secure and efficient **IoT solutions**.

Freelance Software Developer — Oct. 2022 – Oct. 2023
Fiverr — *Remote*

- Delivered over 60 custom projects in **C/C++**, **Python**, and **Java**, tailored to diverse client requirements.
- Managed full software lifecycle, maintaining a **100% on-time delivery rate**.
- Maintained a perfect **5.0/5.0 client rating** for code quality and communication.
- Built long-term client relationships, demonstrating strong **self-management** and technical execution.

Projects

MITRE Embedded Capture The Flag (eCTF) Competition | *C, Python*

- Placed **13th out of 116 teams** in a national **firmware security competition** hosted by MITRE.
- Developed secure firmware for Satellite TV using **NaCl**, **Blake2b**, **Argon2id**, and **Monocypher**.
- Performed **reverse engineering** and uncovered **more than 30 vulnerabilities** in competitor firmware through targeted analysis.

Security Testing Analysis for an E-commerce Platform | *Java*

- Performed **static and dynamic analysis** with **SpotBugs** and **OWASP ZAP**.
- Identified **more than 15 issues**, including **SQLi**, **XSS**, and **CSRF**, applying structured **vulnerability management**.
- Designed and applied **over 15 targeted fixes** for identified vulnerabilities, improving overall security posture.

Publications

Real-time Musical Haptics with Ultra-wideband: A Study on Latency, Reliability, and Perception
*L. Turchet, **C. Sassi**, D. Vecchia, G. Picco* — Published in IEEE Transactions on Haptics on January 6, 2025.

Technical Skills

Languages: Italian, English
Programming Languages: Python, C/C++, Rust, Java, JavaScript, HTML/CSS, SQL
Security Skills: Injection Attacks, Cryptography, Pwn, Reverse Engineering, Web Security