

Luca Volonterio

Cybersecurity Researcher | Security-by-Design Specialist

📍 Brussels, Belgium 🇮🇹 Italian (EU Citizen) ✉ volonterioluca@gmail.com

in [linkedin.com/in/luca-volonterio](https://www.linkedin.com/in/luca-volonterio) 🐙 github.com/l1uk 🌐 Portfolio

Professional Profile

Computer Science Graduate from Italy, 23 years old, with 1.5 years of experience in Full Stack Development and currently pursuing an MSc in Cybersecurity. Strong background in low-level programming (C, C++), cryptographic principles, and secure software development. Brings a generalist perspective that bridges technical depth with practical application, focusing on building scalable and effective security solutions. Was awarded a full scholarship for the CYBERUS Master's program, ranking in the top 5% of applicants. Authorized to work across the European Union as an Italian Citizen.

Seeking a six-month Cybersecurity Internship starting February 2026 in security research, product security, or security-by-design roles. Particularly interested in positions involving cryptographic research, secure architecture design, and advanced security technologies that address future security challenges.

Personal Information

Date of Birth : 2001
Nationality : Italian
Current Location : Brussels, Belgium (Available for relocation)
Languages : Italian (Native), English (Fluent), Spanish (Fluent), German (Conversational), French (Conversational)

Education

Université Libre de Bruxelles (ULB) Brussels, Belgium
Master CYBERUS in Cybersecurity Sept 2025 – Feb 2026

- **Advanced Cybersecurity Courses :** Mobile and Wireless Network Security, Embedded Systems Security, Digital Forensics and Reverse Engineering, Cryptanalysis, Machine Learning Security
- **Specialized Focus :** Mobile security, IoT device security, malware reverse engineering, advanced cryptographic attacks, AI security vulnerabilities
- **Practical Skillset :** Digital forensics tools, reverse engineering techniques, wireless protocol analysis, embedded security assessment
- **Master Thesis :** Expected completion February 2026

Université Bretagne Sud Brittany, France
Master CYBERUS in Cybersecurity Sept 2024 – Jul 2025

- **Cybersecurity Fundamental Subjects :** Cryptology, Penetration Testing, Secure Programming, Security by Design, Risk Analysis and Management, Network Security, Operating Systems Security
- **Academic Excellence :** Awarded full Erasmus Mundus scholarship - ranking in the top 5% of international applicants
- **Relevant Skills :** Malware Analysis, Security Architecture, Compliance Frameworks
- **Contact Person :** [Guy Gogniat](#) (Associate Professor & Program Coordinator)

Università degli Studi dell'Insubria Lombardy, Italy
Bachelor of Science in Computer Science Sept 2021 – Jul 2024

- **Final Grade :** 110/110 cum laude (Highest Honors)
- **Security Relevant Courses :** Computer Architecture, Operating Systems, Networks, Computational Theory
- **Program Focus :** Intensive theory-focused program on low-level computer science, electronics, and mathematics
- **Technical Foundations :** Low-level programming, system security, network protocols, mathematical foundations
- **Contact Person :** [Mauro Ferrari](#) (Head of Department of Theoretical and Applied Sciences)

Ostbayerische Technische Hochschule Amberg-Weiden Bavaria, Germany
Exchange Year in Digital Technology Management Sept 2022 – Sept 2023

- **Security-Focused Courses** : Secure Network Management, Advanced C++, Machine Learning, Cloud Technologies
- **Practical Experience** : Hands-on experience with SPLUNK SIEM and the Scapy framework for network packet analysis
- **Project-Based Learning** : Completed multiple case studies on diverse cybersecurity topics and collaborative group projects
- **German Language** : Developed German language skills through academic and cultural immersion

Istituto Tecnico Industriale Statale MAGISTRI CUMACINI

High School Diploma in Computer Science

Lombardy, Italy
Sept 2015 – Jun 2020

- **Grade** : 85/100
- **Technical Courses** : C Programming, Electronics, IoT Lab
- **Practical Projects** : Built IoT gadgets with Arduino and Raspberry Pi, implemented algorithms in C

Professional Experience

Research Intern

Babeş-Bolyai University

Remote
Apr 2025 – Jun 2025

- Researched and developed a novel Intrusion Detection System (IDS) for routers based on Graph Attention Networks (GATs)
- Analyzed network traffic as graphs to identify anomalies and improve detection accuracy compared to traditional methods
- Applied Machine Learning techniques to cybersecurity through real-time network analysis
- Gained expertise in graph-based security analysis and AI-driven threat detection

Intern

ALTEN

Milan, Italy
Feb 2024 – Jun 2024

- Collaborated with team members on a project, meeting the deadline and successfully exceeding expectations
- Designed the Bachelor Thesis as a response to concrete challenges in IT Infrastructure Management
- Developed a custom AI-based solution used in IT Infrastructure Management
- Learned about the ITIL framework and enterprise IT Service Management

Teacher

Kodland

Remote
May 2023 – May 2024

- Taught Python and Web Development courses to international students
- Provided personal guidance and feedback to students on programming and problem-solving
- Developed leadership and mentoring skills through the teaching experience
- Worked with students from diverse cultural backgrounds

Full Stack Developer

WebRatio

Milan, Italy
Jun 2021 – Sep 2022

- Built and maintained agile-designed Java applications and SQL databases serving 100-1000 users
- Participated in requirements and solution engineering
- Learned about software engineering and cloud solutions
- Contact : [Massimo La Rosa](#) (Service Director)

Key Technical Skills

Programming Languages & Development :

- **Low-Level Programming (Advanced)** : Proficient in C and C++ with hands-on experience in low-level development, interacting directly with memory
- **Object-Oriented & Functional** : Java, Python, Scala with a strong understanding of different programming paradigms
- **Full Stack Development** : 1.5 years of experience building secure and scalable solutions with a working understanding of software engineering

Cybersecurity Specializations :

- **Cryptography** : Solid background in cryptographic principles and low-level implementations
- **Security Analysis** : Penetration Testing, Network Security, Operating System Security, Vulnerability Assessment

- **Security Architecture** : Security by Design, Risk Analysis, Secure Programming Practices
- **Research** : Graph Neural Networks for Intrusion Detection, AI-driven security solutions

Tools & Technologies :

- **Security Tools** : SPLUNK SIEM, Scapy, Network Analysis Tools
- **Development Tools** : Git, Docker, AWS, Selenium WebDriver
- **Machine Learning** : PyTorch, TensorFlow, experience with Graph Attention Networks
- **Databases** : SQL (MySQL, PostgreSQL), Database Security

Key Projects

Novel IDS for Router Security using Graph Attention Networks (GATs)

[Video Defense](#)

Primary research project - Babeş-Bolyai University (Apr–Jun 2025)

- Developed a novel **Intrusion Detection System (IDS)** for routers based on **Graph Attention Networks (GATs)**.
- Methodology involved modeling network traffic as **dynamic graphs** to identify anomalies with high precision.
- Aimed to **improve detection accuracy** over traditional methods using cutting-edge AI and GNN techniques.

AI-Powered Bot Implementation for Process Automation

[Thesis PDF](#)

Bachelor Thesis Project - Grade: 110/110 cum laude

- Developed an AI-based bot capable of analyzing and resolving service tickets
- Implemented Robotic Process Automation for IT Infrastructure Management
- Technologies: Python, Selenium WebDriver
- Note: Source code is confidential, but the report is public

Low-Resource Cryptography Using Conway's Game of Life

[GitHub Repo](#)

Paired project for the Probability and Statistics exam

- Developed a lightweight image encryption system using cellular automata simulation
- Performed tests on the cryptosystem and progressively improved it through iterative analysis
- Ideal for resource-constrained environments and IoT applications
- Technologies: MATLAB, Python

Low-Level Concurrency Management Case Studies

[GitHub Repo](#)

Coursework for the Operating Systems exam

- C code set that addresses resource-sharing and concurrency problems
- Implemented secure synchronization using the C Mutex library
- Applied secure coding practices for memory management and race condition prevention
- Technologies: C

Security-Focused C++ Codebase

[GitHub Repo](#)

Developed during Basic and Advanced C++ courses

- Focused on security and strict memory management control
- Concepts: STL, lifetimes, RAII, Move Semantics, Dynamic Polymorphism
- Applied modern C++ best practices for secure software development
- Technologies: C++

Functional Programming Library

[GitHub Repo](#)

Coursework for the Functional Programming exam

- Scala implementations leveraging functional programming concepts
- Concepts: Currying, pure functions, type systems, tail recursion
- Included test cases to verify the correctness of solutions
- Technologies: Scala

Emotional Songs Web Application

[GitHub Repo](#)

Group project during the bachelor's degree

- Simple web application to navigate a song library
- Responsible for backend development and cloud architecture

- Technologies: Java, AWS, Vaadin, Spring Boot

DIY Smart Greenhouse

2018

Group project during high school

- Built a smart home irrigation system with humidity, light, and temperature monitoring
- Implemented automatic plant watering with data aggregation on a dashboard
- Technologies: Arduino, Wiring, JavaScript

Additional Skills and Interests

Professional Skills :

- **Analytical Thinking and Big Picture Vision** : Generalist mindset that balances technical depth with understanding business needs, focusing on designing solutions that bridge technical and strategic goals
- **International Collaboration** : Effective work within diverse and cross-functional teams with a strong commitment to collaboration and organization
- **Communication** : Fluent in English, Italian, Spanish, and knowledgeable in German and French with strong cross-cultural communication skills

Personal Interests :

- Curious and creative individual with a lifelong love for music - classical piano, performing with orchestras, and music production
- Enjoys traveling, swimming, and immersing myself in cybersecurity challenges
- Active participation in Capture The Flag (CTF) competitions to sharpen practical security skills
- Always keen on learning new things and exploring ways to combine technical skills with creative passions

References

Professional and academic references available upon request, including:

- **Prof. Guy Gogniat** - CYBERUS Program Coordinator, Université Bretagne Sud
- **Prof. Mauro Ferrari** - Head of Department, Università degli Studi dell'Insubria
- **Massimo La Rosa** - Service Director, WebRatio