



Enea MANZI

Curriculum Vitae

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🎓 | Education

- 09/2024 - 10/2026 ○ **Master's Degree in Cyber Security, University of Milan, (Milan, IT)**
Thesis: "Designed and implemented an API Security Assurance framework aligned with CIS Safeguards."
Supervisors: Marco Anisetti, Claudio Agostino Ardagna
Expected Graduation: 10/2026
- 09/2021 - 10/2024 ○ **Bachelor's Degree in System and Network Security, University of Milan, (Milan, IT)**
Thesis: "Design and Implementation of a Framework for Evaluating Distributed System"
Supervisors: Marco Anisetti, Filippo Berto
Final Grade: 110/110 cum laude
- 09/2016 - 06/2021 ○ **High School Diploma in Computer Science, IIS Badoni, (Lecco, IT)**
Final Grade: 93/100

💼 | Work Experience

- 03/2024 - 09/2024 ○ **Curricular Internship for Bachelor's Thesis, SESAR Lab, University of Milan, (Milan, IT)**
Secure Service-oriented Architectures Research Lab (SEASAR Lab)
○ Analyzed existing verification and monitoring solutions in distributed environments and contributed to the design and implementation of the Assurance Engine (a **Rust**-based assurance framework for distributed systems deployed on **Kubernetes**)
○ Extended the existing framework to enable integration with **Elasticsearch**, used as the backend for data collection and querying.
○ Developed and tested **formal** contracts, based on metrics, for the automated verification of **non-functional properties (NFP)** — including the **CIA triad**, **reliability**, **scalability**, and **performance** in distributed and microservices architectures.
○ Implemented **REST APIs** to expose the engine's functionalities.
- 01/2020 - 02/2020 ○ **WBL: web developer, DaTrik Solutions, (Casargo, IT)**
High school work-based-learning
○ Work Based Learning (WBL): development of a web application.
○ Technologies used: **HTML**, **JavaScript**, **jQuery**

🌐 | Languages

- Italian Mother tongue
- English Intermediate *Listening B2 - Reading B2 - Writing B2 - Spoken Production B2 - Spoken Interaction B2*

⚙️ | Skills

- Programming Languages *C, Java, Python, SQL, Web (HTML, JavaScript/Node.js), OOP Concepts, low-level programming*
- Database *MySQL, Database Design, Implementation and Administration*
- Architectures & Software *Docker, Kubernetes, microservices architectures, REST API, Git, Kafka, Kong API Gateway*
- Operating Systems *Fresh OS installation, Linux Administration and Shell, Windows*
- Networking & Security *Network Protocols, ICT Network Security Risk, Secure Coding Practices*
- Tools *Visual Studio Code, GitHub*

🤝 | Soft Skills

- Thinking analytically, critically, proactively
- Problems address problems critically, solve problems/create solutions

Communication cooperate with colleagues, work in teams, manage teamwork
Others demonstrate curiosity, cope with stress, prioritise tasks

Project

- Event-Driven IoT Microservices Architecture (Kafka + Kong)** *Cloud Computing Technologies Course Project (A.Y. 2025/2026)*
Development of a cloud-native Kubernetes infrastructure for IoT ingestion and monitoring, with a particular focus on **non-functional properties** such as scalability, fault tolerance, and edge-to-core security.
- Microservices architecture based on **Apache Kafka** in KRaft mode (ZooKeeper-less) for asynchronous decoupling and reliable message handling (*Zero Data Loss*).
 - Integration of **Kong API Gateway** to implement the *Gateway Offloading* pattern, centralizing Authentication (API Key), Rate Limiting, and Load Balancing at the edge.
 - Storage layer optimized on **MongoDB** using **Time Series Collections** and hybrid compression (LZ4/Zstd) to maximize storage efficiency and analytical performance.
 - Full **Kubernetes** orchestration managed via **Helm**, featuring automatic scalability (HPA) and advanced security (Secrets, TLS/SASL) to meet non-functional requirements.
- FTP Client and Server** *Computer Networks Course Project (A.Y. 2022-2023)*
Developed a multi-threaded **FTP-compliant** client-server application in **C** for file transfer, fully interoperable with **FileZilla**.
- Architecture: Multi-threaded server based on **Socket Programming** for concurrent session management.
 - Data Modes: Native support for both Active (PORT) and Passive (PASV) data transfer modes.
 - Protocol Management: Implemented essential *FTP commands* (e.g., USER, PASS, LIST, RETR, STOR, CWD...)
 - **Key skills:** **C, socket programming, multithreading, network protocols, FTP, Git.**
- Exhibition Web App** *Web and Mobile Programming Course Project (A.Y. 2021-2022)*
Built a dynamic web application serving as a digital portfolio for displaying multimedia content.
- Developed the backend with *Node.js/Express* and the frontend with *HTML5, CSS3, JavaScript/jQuery*.
 - Integrated *MongoDB* for document-oriented storage and *AJAX* for asynchronous client-server communication (GET, POST, DELETE).
 - Managed source code and collaboration using **Git** and **GitHub**.
 - **Key skills:** *Node.js, Express, MongoDB, AJAX, REST APIs, jQuery, Git.*

Bellano, January 14, 2026

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