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 (SESAR 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 Adminsitration
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 (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, December 23, 2025

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