Alessandro Alfano

Software Architect · Systems Integrator · Ethical Technologist

Engineer with a non-linear background spanning classical humanities, medicine, and computer engineering. Specializes in designing modular, evolvable systems and integrating heterogeneous technologies across industrial, IoT, and enterprise domains. Combines technical excellence with a strong ethical focus, seeking opportunities where technology contributes to social justice, environmental sustainability, and community empowerment.

Contact Information

- **Email:** alfano.alessandro@outlook.com
- **Phone:** +39 331 400 1156
- **Location:** Uggiate con Ronago, Italy
- **Website:** https://alessandroalfano.com
- **GitHub:** https://github.com/lysandre995
- **LinkedIn:** https://www.linkedin.com/in/alessandro-alfano-a03687198

Professional Experience

Application Engineer

Microtecna Engineering | Novazzano, Switzerland *2024-04 - Present*

Swiss engineering company specializing in high-tech industrial solutions, robotics, and automated systems

Key Responsibilities:

- Design and development of software applications and integration layers for automated systems, including architecture definition, communication protocols, and data models
- Contribution to the evolution of the company's application framework (.NET/WPF), focusing on modular architecture, extensibility, and web technology integration

- R&D activities: evaluation of databases (including InfluxDB for time-series), CI/CD pipelines, and containerization practices

- Management and evolution of GitLab infrastructure, including Package/Container Registry and advanced Git workflows with submodules

- Internal reference for Linux environments, web technologies, and AI-assisted development workflows

Technologies: .NET, WPF, Git, GitLab CI/CD, Docker, InfluxDB, Linux, gRPC, MQTT, Redis

Key Achievement: Architect and internal technical reference for software applications, R&D, and development infrastructure evolution

Software Architect

YouPower AG | Mezzovico, Switzerland *2023-10 - 2024-04*

Swiss energy technology company focused on smart metering and energy community solutions

Key Responsibilities:

- Led the complete redesign and rewrite of a distributed system for electricity consumption/production data collection and processing

- Coordinated development team and defined end-to-end system architecture

- Designed meter acquisition layer using Modbus protocol and IoT router configuration (MikroTik RouterOS, WireGuard VPN)

- Architected on-premise cloud infrastructure with VMs and Docker Swarm

- Developed data visualization platform using Angular and NestJS

- Implemented automated billing data generation and OCPP server for EV charging stations

Technologies: Angular, NestJS, TypeScript, Docker Swarm, MongoDB, Redis, Modbus, RouterOS, WireGuard, OCPP

Key Achievement: Full system architecture redesign for Swiss energy communities, from meter acquisition to billing automation

Full Stack Developer

Forge Srl | Varese, Italy *2022-02 - 2023-09*

Italian software house specializing in cloud-native solutions and enterprise integrations

Key Responsibilities:

- Contributed to Leapp, an open-source application for secure cloud access management in DevOps environments

- Designed and implemented AWS-based solutions using TypeScript, including e-commerce-to-ERP integration flows
- Developed microservices-oriented document processing system (Spring Boot) for Italian electronic invoicing standards

Technologies: TypeScript, AWS, Spring Boot, Java, Node.js

Key Achievement: Open-source contribution to Leapp and cloud-native integration solutions for enterprise clients

Software Developer

Arsinform Srl | Milan, Italy *2021-05 - 2022-01*

Italian company specializing in industrial automation and warehouse management software

Key Responsibilities:

- Contributed to design and evolution of automation systems for automated warehouses
- Integrated and optimized mission management system for a leading Italian food producer/distributor
- Conducted operational research for technology stack modernization

Technologies: Oracle, PL/SQL

Key Achievement: Mission management system optimization for industrial logistics

---

Education

B.Sc. Computer Engineering

Politecnico di Milano - Milan, Italy *2020 - In progress*

Medicine and Surgery (partial)

University of Milan - Milan, Italy *2014 - 2020*

Redirected career path; developed analytical and problem-solving foundations

Classical Studies Diploma (Maturità Classica)

Liceo Classico Alessandro Volta - Como, Italy *2009 - 2014*

Humanistic foundation with Latin and Ancient Greek studies

Interdisciplinary background spanning classical humanities, medicine, and computer engineering.

Core Competencies

Software Architecture & System Design

Design of modular, evolvable, and maintainable systems. Definition of boundaries, responsibilities, data models, and long-term architectural strategies.

Key Skills: System Design, Modular Architecture, Technical Strategy, Domain Modeling

Complex System Integration

Integration of heterogeneous systems spanning automation, IoT, cloud services, and enterprise platforms. Expertise in communication protocols, data flows, and orchestration patterns.

Key Skills: System Integration, Protocol Design, Data Orchestration, Heterogeneous Systems

Distributed Systems & Cloud-Native Architectures

Design and implementation of distributed systems, microservices-based solutions, containerized environments, and hybrid cloud/on-prem infrastructures.

Key Skills: Microservices, Containerization, Cloud-Native, Hybrid Infrastructure

DevOps & Engineering Practices

Advanced Git workflows, CI/CD pipeline design, containerization with Docker, and development infrastructure management. Emphasis on standardization and automation.

Key Skills: CI/CD, GitOps, Containerization, Infrastructure as Code

Applied Research & Technology Evaluation

Evaluation and adoption of emerging technologies including time-series databases, integration patterns, and AI-assisted workflows. Translation of research into concrete engineering improvements.

Key Skills: R&D, Technology Evaluation, Innovation, Continuous Improvement

Technical Skills

Architecture & Design

System Architecture, Microservices Design, Domain-Driven Design, Event-Driven Architecture, API Design

Programming Languages

- **Primary:** C#, TypeScript, JavaScript, Lua
- **Secondary:** Java, Python, Rust, SQL
- **Scripting:** Bash, PowerShell

Frameworks & Libraries

- **Backend:** .NET, NestJS, Node.js, Spring Boot
- **Frontend:** Angular, WPF

Databases

- **Relational:** PostgreSQL, MySQL, SQLite
- **NoSQL:** MongoDB, Redis, InfluxDB
- **Messaging:**

Infrastructure & DevOps

- **Containerization:** Docker, Docker Swarm, Docker Compose
- **CI/CD:** GitLab CI/CD, GitHub Actions
- **Cloud Platforms:** AWS

Integration & Protocols

gRPC, MQTT, REST, WebSocket, OPC UA, Modbus TCP

Certifications

- **AWS Solutions Architect – Associate (Training Course)** - beSharp Srl (2022-11)

Featured Projects

Alphamon

Game Framework - Active development (private repository)

RPG game framework in Lua/Love2D featuring dependency injection architecture, multiplayer networking, and a complete battle system. Designed as an extensible starter kit for game developers.

Features:

- Dependency Injection
- Multiplayer Networking
- Battle System
- Dialog Management

Technologies: Lua, Love2D

Industrial Integration Middleware

Integration Framework - Professional project (implementation proprietary)

Framework/application template for multi-protocol integration in industrial environments. Supports OPC UA, Redis, REST, gRPC, and other protocols for heterogeneous system communication.

Technologies: .NET, OPC UA, Redis, gRPC, REST

AML (Alessandro's Music Language)

Creative Tool - Experimental

Custom music notation system for chiptune and game music composition, with synthesis capabilities using ChucK.

Technologies: ChucK, Custom DSL

Open Source Contributions

Leapp

Noovolari

Secure cloud access management for DevOps environments (AWS, Azure, GCP)

Feature development and contributions during Forge tenure

https://github.com/Noovolari/leapp

Languages

- **Italian:** Native
- **English:** C1 (Professional)
- **French:** A2 (Elementary)
- **Latin:** Reading (Classical studies)
- **Ancient Greek:** Reading (Classical studies)

Interests

Creative Pursuits

- **Music**: Singing and playing in a rock band; chiptune composition; music notation systems
- **Theater**: Acting and performance
- **Game Development**: Indie game development in Lua/Love2D

Physical Activities

- **Sailing**
- **Soccer Coaching**: Youth team coaching

Professional Values

- Technology for social good
- Open source and transparency
- Environmental sustainability
- Community empowerment
- Ethical engineering practices

I authorize the processing of personal data in accordance with Legislative Decree 101/2018 and GDPR (EU Regulation 2016/679)