SOFTWARE ENGINEER

# Francesco Vicidomini

Software engineer with 6 years of experience delivering enterprise applications across consulting and research. One of my skills is turning complex requirements into reliable solutions by evaluating trade-offs with the team and carrying decisions through implementation. This approach has led me to coordinate small teams, improve branch coverage through supervised AI-generated tests, and collaborate internationally. Now I'm focussing on AI-assisted development, RAG systems, and MCP servers.



## CONTACT


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## TECHNICAL SKILLS

**AI-Assisted Engineering**

GitHub Copilot · Agentic Coding · RAG Systems · MCP Servers · Prompt Engineering · AI Output Validation · AI-Assisted Refactoring · Test Generation

**Backend & Integration**

Java SE · Spring Boot · REST APIs · Apache Kafka · Node.js · Python · MySQL · MongoDB

**Frontend**

TypeScript · Angular · RxJS · NgRx · Nx · React · Next.js

**Quality & Delivery**

Automated Testing · Code Review · Git & GitLab · GitHub Actions · Docker · Kubernetes · CI/CD · Agile Scrum

## LANGUAGES

| | |
|---|---|
| **Italian** | Native |
| **English** | B2 |


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## PROFESSIONAL EXPERIENCE

### Software Development Specialist

**Jul 2023 – Present**

Engineering Ingegneria Informatica · Naples, Italy

- Own software design and delivery for cybersecurity applications in EU research projects, from requirements analysis and architecture through implementation, integration, testing, and CI/CD.
- Built Spring Boot and Node.js solutions across diverse projects, containerized applications with Docker, and contributed to their deployment and release on Kubernetes clusters.
- Diagnosed repeated server-side calculations in an existing system and guided an optimization that improved API response times while preserving expected results.
- Used GitHub Copilot to generate test cases for positive, negative, and boundary scenarios; critically reviewed and validated AI-generated test data and cases, increasing branch coverage across projects and enabling more reliable application releases.
- Currently enhancing a web application to integrate AI agents grounded in context retrieved by a RAG system, enabling context-aware interactions within existing application workflows.
- Established a GitLab Issues workflow for development tracking, assigning every task to an owner and managing it through Todo, Doing, and Done states; assignees updated progress and linked commits to the relevant issue, providing clear task-to-code traceability.
- Collaborated in English with international teams across EU-funded projects, aligning technical decisions, progress, and deliverables with partner organizations.

### Software Engineer

**Jun 2020 – Jul 2023**

NTT DATA · Naples, Italy

- Developed web interfaces using Angular for a production platform that digitized public-administration processes, integrating them with Java and Spring Boot REST services backed by MySQL.
- Gathered requirements directly from client stakeholders and translated complex administrative needs into platform features, covering analysis, UI implementation, back-end integration, and release.
- Consistently delivered reliable functionality as the project expanded, earning responsibility for coordinating a three-person development team through task assignment, implementation support, and code review.
- Worked within an Agile Scrum team and actively participated in the full delivery cycle, including backlog refinement, sprint planning, daily stand-ups, reviews, and retrospectives.

## SELECTED PROJECTS

### AVANT

**2025 – Present**

Engineering Ingegneria Informatica

NextGenerationEU cybersecurity project for Digital Twin systems. Designed and developed workflows to monitor a Digital Twin, model business cases and connected assets, simulate MITRE ATT&CK attack paths and countermeasures, and compare inherent and residual asset risks. Researched the Digital Twin domain to translate emerging concepts into an implementable platform solution.

**Technologies:** Angular 22, TypeScript, RxJS, NgRx, Nx, Spring Boot, MongoDB, Docker, Keycloak, CI/CD

## SELECTED PROJECTS

### ENCRYPT

2023 – 2025

Engineering Ingegneria Informatica

Horizon Europe privacy risk assessment project developed within a consortium of organizations from across Europe. Built a web module that models domain-specific asset taxonomies, evaluates LINDDUN privacy impacts and exposure to MITRE ATT&CK techniques, calculates privacy risk scores, and summarizes results through interactive charts. Integrated an Apache Kafka broker to publish selected application data to an external service. Used and supervised GitHub Copilot to document the Node.js APIs with OpenAPI specifications, reviewing generated output for accuracy and consistency.

**Technologies:** Angular 22, TypeScript, RxJS, NgRx, Nx, Tailwind CSS, Node.js, Apache Kafka, OpenAPI, MongoDB, Docker, Keycloak, CI/CD

### PAB Goes Digital

2020 – 2023

NTT DATA

Large production platform for digitizing provincial administrative processes used by citizens, businesses, tax assistance centres, and public offices. Contributed to requirements analysis, application maintenance, role-based workflows, REST integration, delivery, and direct client collaboration.

**Technologies:** Angular, TypeScript, Spring Boot, REST APIs, MySQL, JWT, Agile Scrum

## INDEPENDENT PROJECTS

### My Gym Stats MCP

Personal AI experiment

One of my passions is weight training; I've been training for years and have always kept a logbook of the exercises performed and the weights lifted, using a Google Sheets file on Google Drive. Over time, the number of workouts grew significantly, making it increasingly difficult to summarize the data. While studying how MCP (Model Context Protocol) servers work, I realized that they allow an LLM to access my knowledge base and provide analyses.

**Technologies:** Node.js, Model Context Protocol, Google Drive API, Google Sheets API, OpenAI Codex

GitHub repository

### My Superhero RAG

Personal AI experiment

Built a Python RAG prototype over Markdown profiles of DC and Marvel superheroes. Used Universal Sentence Encoder embeddings and FAISS similarity search to retrieve relevant content, then engineered a prompt combining the user question with the reconstructed context to guide Gemini toward structured JSON answers.

**Technologies:** Python, RAG, Universal Sentence Encoder, FAISS, Gemini, Prompt Engineering, Markdown

GitHub repository

### MyFiscalCode

Personal project

Built a cookie-, tracker-, and ad-free Italian fiscal code calculator in Next.js to replace intrusive online alternatives. Used AI-assisted generation to create Jest unit tests covering positive, negative, and boundary cases, raising branch coverage above 80% for core functionality; complemented them with Playwright E2E tests. Now used by friends, colleagues, and family.

**Technologies:** Next.js, React, Server Actions, Route Handlers, Mongoose, Jest, Playwright

GitHub repository

### FrancescoVicidomini.dev

Personal website

Improved the portfolio's Google indexability by adopting Server-Side Rendering with Next.js, making page content directly available to search crawlers.

**Technologies:** Next.js, React, SSR, Tailwind CSS, Vercel, GitHub CI/CD

GitHub repository

## EDUCATION

### Master Degree in Computer Science

2018 – 2020

Università degli Studi di Salerno · Salerno, Italy

Grade: 110/110 cum laude

### Bachelor Degree in Computer Science

2013 – 2017

Università degli Studi di Salerno · Salerno, Italy

Grade: 94/110

## PUBLICATIONS

**Implementation of a Tool for Risk Assessment of Personal Data Processing Using a Methodology Based on the LINDDUN and MITRE ATT&CK Frameworks** 2025

ENCRYPT Project · Technical article · Engineering Ingegneria Informatica

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