Francesco **Abate**

COMPUTER ENGINEER

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Summary

My name is Francesco Abate. I'm a computer engineer originally from Italy, but having grown up in France and with Argentinian ancestry. I have been an Avionic Software Engineer at a leading Italian defence company, working on the C27J Spartan aircraft to implement new functionalities and resolve software issues. I lead the Embedded Engineers Team of the Polito Rocket Team, where I design and develop the firmware architecture for our homemade flight boards and coordinate a small team of embedded developers.

Currently doing my thesis in the USA. I'm also passionate about CTFs (particularly cryptography) and Artificial Intelligence.

Work Experience

N3 SRL & INAF (Italian National Astrophysics Institute)
Turin, Italy

INTERN SOFTWARE ENGINEER · *Dec. 2020 - Feb. 2021*

- A project aiming at equipping Italy with a network of all-sky cameras to observe bolides.
- Realisation of a python program that handles the IDL script for calibrating the camera of the telescope, producing logs, handling various data.
- Technologies : Python, IDL, SQL.

TXT E-Tech & Leonardo
Turin, Italy

AVIONIC SOFTWARE ENGINEER & SOFTWARE ENGINEER · *Jun. 2023 - Jul. 2025*

- Implementation of new requirements and bug fixes on different configurations of the Mission computer and bridge software for the C27J Spartan Leonardo planes.
- Redaction of new detailed requirements based on high level requirements. Wrote about 100 requirements, implemented around 70 requirements and fixed more or less 20 formal bugs.
- Creation of an application to analyze software written in ADA to check for coding rules & conventions.
- Technologies: ADA, Python, Doors, PyInstaller.

Polito Rocket Team
Turin, Italy

LEAD EMBEDDED SOFTWARE ENGINEER · *May 2023 - March 2026*

- Designed and wrote the firmware of the 2 flight computers of the VES rocket from scratch.
- Wrote the code of the ground station application that receives, elaborates and displays data from the flight computer.
- Gave technical and behavioral interview to potential new members.
- Technologies : STM32, C, C++, QT.

Awards

2025	**Winner,** Hackapizza edition 2025		*Milan, Italy*
2022	**Winner,** M0lecon 2022 CTF beginner		*Turin, Italy*
2023	**Winner,** ANACOM Award @ EUROC 2023		*Abrantes, Portugal*

Education

Cité Scolaire Internationale
Lyon, France

INTERNATIONAL BACCALAUREATE (IB)

- Obtained an International Baccalaureate in french and italian

Politecnico di Torino
Turin, Italy

B.S. IN COMPUTER ENGINEERING

Politecnico di Torino
Turin, Italy

M.S. IN COMPUTER ENGINEERING, CYBERSECURITY TRACK · *March 2023 - March 2026*

- Pursuing a master degree in computer engineering specialized in cybersecurity

Thesis

Adaptive Networking Framework using eBPF and AI (DARPA FLUID Inspired) *Saint Louis University, USA*

Master Thesis intern

Sept. 2025 - March 2026

- Architected and implemented eFRAC, a novel framework for resilient communications in severely degraded tactical networks (simulating 1000x bandwidth loss). The contribution is an eBPF-driven control plane that provides in-kernel Telemetry to monitor network state and a custom Signaling protocol to dynamically command end-hosts to adapt their compression policies. Integrated multiple compression schemes, including header compression and a prototype LLM-based semantic transcription module for video. The framework was validated to significantly reduce network load while maintaining high semantic similarity for mission-critical data. Technologies: eBPF, Python (PyTorch/TensorFlow), C, Scapy, Linux Networking

Trainings

Cyberchallenge *Turin,Italy*

Scholar

Feb. 2024 - June 2024

- Selected alongside 24 other youngsters below the age of 25 among 500 applicants.
- received a 3 months training on CTFs and Attack & Defence competitions from the pwnthem0le CTF team.

Projects

Screenshotter

⚭ *https://github.com/frontinus/rust_project*

- academical project, desktop app allowing to take a screenshot and elaborate it to crop, change colors, add shapes and then save it on your file system.
- Technologies: Rust, druid

Generative_Wiki

⚭ *https://github.com/frontinus/Generative_IA_Wiki*

- Personal project, a generative IA that prompted with queries answers with 20th century's knowledge from Wikipedia.
- Technologies: Python, PHI-3, Rust, RAG, API

DaVinci & Marconi

⚭ *https://frontinus.github.io/projects/2025/10/26/Marconi_and_DaVinci.html*

- Marconi is the telemetry board, using Xbees, Teseo, Gnss while Davinci is the sensor board, using a winbond, sensors, and communicating by UART.
- Technologies: STM32, C

ADA_Standards

⚭ *https://crates.io/crates/ADA_Standards*

- Rust library built as a tool to analyze the content of ada code, especially useful to check coding standard in the context of massive engineering projects in the automotive or aerospace industry.
- Technologies: RUST, REGEX

Extracurricular Activity

Toastmasters *Turin, Italy*

Core Member & Vice-President

2019 - 2024

- Delivered many speeches and completed the presentation mastery pathway.

Languages

French C2, one of my mother tongues.

Italian C2, one of my mother tongues.

English C1, according to IELTS test.

Spanish B2, never tested in an official context, self estimation.

Other Skills

Programming languages Rust, C, Python, Javascript, C++, ADA

Soft Skills Problem Solving, Team Leadership, Agile Methodologies, Cross-Functional Collaboration, Public Speaking