

FRANCESCO GRAMAZIO

 francesco.gramazio17@gmail.com

 [Portfolio](#)  [GitHub](#)  [Linkedin](#)

  : +61 416623052

  : +39 3276685782

EDUCATION

Alma Mater Studiorum – University of Bologna, Italy

Bachelor of Computer Engineering (graduation day: 4th Febraury 2021)

Thesis: Designed and implemented a Software Defined Networking (SDN) switch component to compare the performance of **REST**, **gRPC**, and **WebSocket** protocols. Implemented the network switch simulator in **Python** using **Ryu**, performed latency and data integrity benchmarking with **Mininet**.

PROFESSIONAL EXPERIENCE

Lovells Automotive Pty Ltd

Software Engineer
Sydney, NSW, Australia
November 2025 – Present

Lovells Portal [Project Lead] (11/2025 - present)

- Architected and developed a high-performance **Rust** backend using **Axum**, **SQLx**, and **Redis** crates to manage the federal and state certification workflow for **GVM-upgraded vehicles in Australia**. Designed secure RESTful APIs, JWT-based authentication and fine-grained role-based authorization, efficient compliance document **storage**, vehicle records lookup automations with the australian **RAV Rover** federal system, vehicle **VIN matching** using **OCR** techniques and caching mechanisms to improve scalability, security, and response times.
- Built a modern **React + TypeScript** web application tightly integrated with the Rust backend, delivering a responsive, role-aware interface for administrators, corporate staff, and automotive dealers. Implemented reusable components, dynamic UI rendering, and optimized state management using **context**, **memo**, **effect** and **state** hooks for a fast and stable user experience.
- Replaced an expensive third-party SaaS platform with a fully in-house solution, reducing operational costs from approximately **AUD \$2,500 per month** to around **AUD \$100 per month**, eliminating vendor lock-in and giving the company complete ownership of its infrastructure, software, and data.

Lovells Printers Proxy [Project Lead] (11/2025 - present)

- Designed and developed a **lightweight Rust axum service** sharing common modules with the primary backend to automate **compliance thermal-label printing** through pure **TCP/IP** requests across the local network of all the different customers. The shared architecture reduced code duplication while simplifying maintenance and feature development.

OLS Data Extractor [Project Lead] (11/2025 - 9/2026)

- Engineered a comprehensive data extraction and migration solution for a legacy platform using **Axios** for direct HTTP requests and **Puppeteer** for browser automation, successfully recovering and backing up business-critical data despite platform limitations and access restrictions demonstrating security vulnerabilities about the system.

Contour-3D Pty Ltd

Software Engineer
Sydney, NSW, Australia
September 2023 – October 2025

Smoothie [Project Lead] (1/2024 - 4/2024)

- Designed and developed an hardware-agnostic computer vision system for automatic concrete layer width adjustment during 3D printing using **OpenCV**, a **3D camera SDK**, and **C#**.
- Optimized execution for **ARM64 single-board computers**, minimizing CPU and memory consumption while maintaining real-time performance.

Gantry Control System [Core Contributor] (9/2023 - 10/2025)

- Analysed and maintained real-time firmware for large-scale concrete 3D printers running on **FreeRTOS** and **ARM32 microcontrollers**.
- Developed firmware in **C++** and **Rust** for communication with sensors and industrial peripherals through GPIO interfaces, ensuring deterministic behaviour for time-critical operations.

Printour [Core Contributor] (10/2023 - 10/2025)

- Designed and developed a responsive **Angular** single-page application for monitoring and controlling industrial concrete printers within a local network.
- Implemented **virtual file management**, **printer jogging** and **motion tuning**, **concrete mixing control**, accelerator management, and responsive layouts supporting tablets and laptops.

Guardian [Project Lead] (06/2025 - 08/2025)

- Architected and developed a hybrid edge/cloud **Network Video Recorder** (NVR) proof of concept using **C#** together with **FFMPEG** and **OpenCV .NET** wrappers.
- Designed an in-house configurable **motion detection algorithm** to significantly reduce storage requirements while preserving pre-capture of the image after being unfrozen.

Gateour [Project Lead] (12/2023 - 10/2025)

- Developed **RESTful APIs**, **WebSocket services**, and **HTTP video streaming** endpoints powering remote printer monitoring and management.
- Built React/TypeScript interfaces for live video streaming, concrete recipe management, and operational control.

Lovells Springs Pty Ltd

Software Engineer
Newcastle, NSW, Australia
January 2023 – September 2023

Global View [Project Lead]

- Redesigned the production dashboard using **React**, **Bootstrap**, and **Material UI Pro**, improving UX for managing manufacturing orders.

Lovells Access [Project Lead]

- Designed and developed a **.NET** integration middleware connecting **Microsoft Access** databases with the modern React frontend, streamlining business workflows and data synchronization.

TAS Group

Junior Software Engineer
Bologna, Italy
March 2021 – December 2022

Digital Payments Platform [Core Contributor]

- Designed, developed, and maintained enterprise microservices supporting **SEPA transfers**, **PSD2**, payment gateways, and **SWIFT** messaging.
- Worked with **Java**, **Spring**, **Kafka**, **IBM MQ**, and **ActiveMQ** to integrate the core logic to process millions of financial transactions and messages daily.

Infrastructure [Maintainer]

- Managed application deployments using **Docker** and **Kubernetes** and designed CI/CD pipelines with **GitLab CI**.

Luna Partner

Software Developer Intern
Remote – Italy
April 2020 – June 2020

Infragest [Apprentice]

- Developed an Angular single-page demo app for managing public railway infrastructure.
- Integrated part of the backend services through **Spring Framework** and **OpenAPI**, generating strongly typed HTTP clients and domain models.

OPEN SOURCE PROJECTS (top 3 projects, checkout my [GitHub](#) for more)

Dyson Ltd: Optical Flow Driver for PAA5100JE / PMW3901

Technologies: Rust, Embassy, Linux, SPI, Raspberry Pi

- Extended the Rust ecosystem with cross-platform support for the **PAA5100JE / PMW3901 optical flow sensor**, enabling the same driver to run on both **Linux** and **embedded (no_std)** environments through a unified **maybe-async** API.
- Implemented and validated Linux support on a **Raspberry Pi Zero 2 W** and embedded support on a **Raspberry Pi Pico**, providing fully tested reference implementations for both platforms.
- Published complete example applications demonstrating sensor initialization, motion data acquisition, and hardware integration to simplify adoption by the embedded Rust community.

Thermal Camera Driver for MLX90640

Technologies: Rust, C#, .NET, Embassy, Linux, I²C, Raspberry Pi

- Developed complete drivers in **Rust** and **C#** for the **MLX90640** thermal imaging sensor using generic I²C abstractions.
- Built a React application for low-latency thermal image visualization using WebSocket.

WebFlux E-Commerce

Technologies: Java, Spring WebFlux, Next.js, Docker

- Developed a proof-of-concept e-commerce web app showcasing reactive programming with Spring WebFlux and Reactor within a Docker-based architecture.