

# Jorge Gómez Rodríguez

✉ jgr.espiga@protonmail.com | 🌐 jgespiga.com | 🐙 github.com/jgespiga | 🔗 linkedin.com/in/jgespiga

## Education

Universidad Carlos III de Madrid

*B.Sc. in Computer Science and Engineering*

Expected May 2027

*Madrid, Spain*

## Experience

Europol — SIRIUS project

Mar 2026 – Present

*Software Engineer · Collaborator and Maintainer*

*Remote*

- Built a tool with a **Rust** backend designed for asynchronous processing and efficient resource management, backed by **PostgreSQL**.
- Implemented a worker architecture using **gRPC** to connect Rust services with **Python** workers, separating task orchestration from execution.
- Developed the **Next.js/TypeScript** interface, packaged the services with **Docker Compose**, and continue to maintain the tool through testing, fixes, and new features.

CITCO — Spanish Ministry of the Interior

Jan 2026 – Mar 2026

*Software Engineering Intern*

*Madrid, Spain*

- Built **Python** web-scraping services for an open-source intelligence (OSINT) tool, automating time-consuming manual data collection, significantly reducing the team's workload. The tool remains in use at the organization.
- Worked on the **Next.js/MySQL** application and its deployment with **Docker Compose**.

Colectivo Cinética

Nov 2023 – Aug 2025

*Freelance Full-Stack Developer*

*Madrid, Spain*

- Built two cross-platform desktop applications with reusable components and a modular architecture to support ongoing maintenance.
- Developed the web interface connecting the applications to the company website using **React and TypeScript**, and packaged them for deployment with **Docker**.

## Projects

MemAlloc | *Source code*

*Rust · Memory management*

- Built a general-purpose memory allocator implementing **GlobalAlloc**, free lists, and Unix/Windows support through **mmap** and **VirtualAlloc**.

Lyra Framework | *Source code*

*PHP · SQL · MVC*

- Created a web framework with routing, dependency injection, database models, templates, authentication, and a CLI for scaffolding and migrations.

DIMACS Shortest Paths | *Source code*

*C++ · Algorithms*

- Implemented Dijkstra and A\* with the ALT landmark heuristic on a compressed sparse row graph representation to find routes through road networks.

## Skills

**Languages:** Rust, Python, TypeScript, JavaScript, C/C++, PHP, SQL

**Technologies:** Next.js, React, gRPC, Docker, Redis, PostgreSQL, Git

**Languages spoken:** Spanish, English