Iago Fernández Perlo

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Summary

Dual BSc student in Mathematics and Computer Engineering focused on solving complex architectural problems. I leverage mathematical rigor to optimize low-level software, strictly minimizing temporal and spatial complexity. I seek to contribute value in the development of concurrent systems and high-performance infrastructure.

Education

Universidade de Santiago de Compostela — Spain
Dual BSc in Mathematics and Computer Engineering — *Sep 2020 - Jun 2027*

University of Lodz — Poland
Erasmus+ Exchange Program — *Sep 2025 - Jun 2026*

Experience

Software Engineering Intern — Oct 2025 - Present
RAPOSa (CITMAGA) — *Galicia, Spain*

- Integrated the RAPOSa global polynomial optimization solver with native C++ APIs of industry-standard solvers, including IPOPT, Knitro, Mosek, and Clarabel.
- Designed a new Second-Order Cone Programming (SOCP) input system to tighten mathematical relaxations using advanced conic constraints.
- Remotely operated on CESGA (Galicia Supercomputing Center) infrastructure via SSH, utilizing a self-hosted GitLab instance for continuous integration and deployment.

Technical Projects

Bare-Metal Homelab | *Docker, Wireguard, PostgreSQL, Linux*

- Managing a high-availability Raspberry Pi 4 home server backed by a UPS. The repository serves as the declarative GitOps source of truth for all configurations and deployments.
- Hosting a containerized PostgreSQL database and internal developer tools, securely accessible via local networks or remotely through a custom zero-trust WireGuard VPN tunnel.

High-Performance Architecture Hub (iagofernandez.dev) | *Astro, Cloudflare*

- Architected a statically generated portfolio deployed on an edge network, ensuring zero client-side hydration delays. Serves as the central directory detailing all my engineering projects.
- Decoupled backend logic by implementing serverless Cloudflare Workers for secure, edge-computed data routing.

Async Network Engine | *C, Linux Kernel, epoll, Network Protocols*

- Developed a custom network stack in C designed to bypass standard library abstractions and maximize asynchronous I/O throughput for high-concurrency environments.
- Utilized kernel-level event notification via epoll to handle connection scaling and implemented strict lock-free data structures to eliminate thread synchronization latency.

Conway's Game of Life | *C++, OpenGL, Parallelization, Memory Management*

- Engineered a highly optimized cellular automaton simulation utilizing C++ and OpenGL, capable of rendering complex environments in both standard 2D grids and 3D toroidal topologies.
- Maximized spatial and temporal performance by optimizing underlying matrix algorithms to ensure CPU cache memory contiguity during complex matrix calculations.

Honors & Achievements

Quantitative Sciences: Qualified for the National Mathematics, Physics, and Chemistry Olympiads. Awarded the *Premio Extraordinario de Bachillerato* (High School Academic Excellence Award).
Programming & Security: Competitor in the Ada Byron Software Development Contest. Active participant in cybersecurity Capture The Flag (CTF) events and technical Hackathons organized by INCIBE.

Technical Skills

Languages: C, C++, Rust, Python, Assembly, Java, C#, Fortran, SQL, MATLAB, R
Math & Data: Maple, AMPL, NumPy, Pandas, LaTeX
Infrastructure: Linux, Bash, Docker, Git, CMake, Make, Ninja, Nginx, Apache, PostgreSQL, MySQL
Web & Graphics: TypeScript, JavaScript, Astro, Next.js, Tailwind, HTML/CSS, OpenGL, Unity, Godot, Figma
Spoken Languages: Spanish (Native), Galician (Native), English (B2)