RODRIGO GOMES DE ARAÚJO

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PROFILE

Master's student in Computer Science with expertise in **systems programming**, **algorithm optimization**, and **computational modeling**. Strong foundation in **C/C++**, **Java**, **Rust**, and **Python**, with experience in high-performance applications from compilers to distributed systems. Proven analytical problem-solver with demonstrated ability to work independently on complex projects and collaborate effectively in team environments. Seeking opportunities in **high-performance computing**, **systems optimization**, and research-driven development.

EDUCATION

FCUP - Faculty of Sciences of the University of Porto *2025 - Present*
Master's in Computer Science

FEUP - Faculty of Engineering of the University of Porto *2022 - 2025*
Bachelor in Computer Science and Engineering

PROJECTS

Retro Style Game for Hackathon *2025*
IEEE RetroJam 2025 - 2nd Place Overall

Developed narrative-driven game exploring existential themes using **Rust** and **Raylib**. Implemented game loop mechanics, state management, custom map builder tool and sound design. Collaborated with interdisciplinary team under tight time constraints, networking with likeminded developers and demonstrating rapid prototyping and complete project delivery capabilities.

Black Hole Physics and Light Simulation *2025*
Personal Project

Developed interactive 2D simulation of light bending around a Schwarzschild black hole using **Rust** and **raylib**. Implemented **null geodesic calculations** with **4th-order Runge-Kutta** numerical integration, demonstrating strong mathematical modeling and computational physics capabilities.

Distributed Systems and High-Performance Computing *2024*
University Project

Implemented optimized matrix multiplication in **C++** and **Rust** with **cache optimization** and **OpenMP parallelization**. Built concurrent chat server in **Java** using **virtual threads**, custom concurrency controls, **PBKDF2 authentication**, and heartbeat monitoring.

Global Flight Management System *2024*
University Project

Engineered scalable system processing **1 million flights** using **C++** and **STL**. Implemented **graph algorithms**, **Haversine distance calculations**, and **articulation points detection** with optimized **hash tables** and **template programming**.

TECHNICAL SKILLS

Programming Languages:	C/C++, Java, Rust, Python, OCaml, SQL
Tools & Technologies:	Git, Linux, Docker, Postman, ANTLR, OpenMP
Core Competencies:	Algorithm Design, Performance Optimization, Parallel Computing, Numerical Methods, Distributed Systems, System Architecture
Languages:	Portuguese (native), English (proficient - B2 Cambridge FCE), Spanish (basic)

AWARDS AND HONOURS

2nd Place Overall - IEEE RetroJam 2025 *2025*
Game Development Competition - Sisyphus Project

World 4th Place - RoboCup Robotics Championship *2016*
Superteam Division (Rescue) - Leipzig, Germany

National 1st Place - National Robotics Championship *2016*
Cospace Rescue Division - Instituto Politécnico de Bragança, Portugal

Merit Award *2020, 2021, 2022*
Escola Secundária Carlos Amarante - Three consecutive years of academic excellence

National 4th Place - Mathematics Competition *2016*
Canguru Matemático Sem Fronteiras, Portugal