

EDUARDO SILVA

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MSc Software Engineering student currently specializing in high-performance computing, mobile-robotics (ML & Graphics), and low-level systems. Strong background in C/C++, OpenGL, GPU/CPU optimization, parallel computing (OpenMP, CUDA, MPI) and real-time systems.

EDUCATION

University of Minho

BSc Software Engineering,

Braga, Portugal

Sep 2020 – Jul 2024

Technische Universität Wien

MSc Software Engineering & Internet Computing,

Vienna, Austria

Mar 2024 – Present

- Participated in the F1/Tenth Autonomous Racing Challenge
 - 1st Place - Time Trial | 3rd Place - Head-to-Head
 - Deployed autonomous driving algorithms using ROS2 and simulation tools

EXPERIENCE

Full-stack Developer

Jan 2024 – Feb 2025

SORSI

- Collaborated in a small team to design a full-stack client management platform (MERN, RESTful API, microservices)

PROJECTS

GPU-Accelerated Fluid Simulation (C/CUDA/OpenMP)

- Optimized 3D fluid solver using ILP, cache tiling, OpenMP, and CUDA
- Achiving 8 × speedup, analyzed CPU vs GPU scalability
- Profiling & performance with perf, gprof, nsys, ncu

MPI Collectives & Parallel Algorithms

- Implemented custom MPI Allgather + merge algorithms
- Designed Bruck / Circulant variants, loser trees, SoA layouts
- Benchmarked up to 640 processes on an HPC Cluster

Graphics Engine / OpenGL Rendering

- Built rendering pipeline using VBOs, Catmull-Rom splines, Bézier patches
- Implemented lighting models, normals, specular mapping
- XML driven & performance oriented engine

Custom Anti-Cheat System for Esports Tournament

- Organized and hosted a competitive online tournament with 180 participants
- Developed anti-cheat integration using a third-party API to detect and prevent cheating

Autonomous Racing (F1/Tenth Challenge)

- ROS2 autonomous racing: SLAM, LiDAR, control, algortihms such as (Disparity Extender, Pure-Pursuit)
- Implemented real-time navigation, obstacle avoidance, and path planning
- Deployed on 1/10 scale autonomous vehicle

SKILLS

Programming Languages: C, C++, CUDA, Python

Graphics: OpenGL

Parallelism: OpenMP, MPI, CUDA, multi-threading

AI/ML: PyTorch, TensorFlow

Robotics: ROS2, RViz, Foxglove

LANGUAGES

Portuguese - Native; English - C1 (Advanced); Spanish - Conversational