

Francisco Guinot Almenar

Simulation & Graphics Programmer

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Professional Profile

Simulation and graphics programmer with a strong foundation in real-time rendering, physics systems, and GPU programming. Experienced in heavy vehicle simulation using OSG and PhysX (4/5), including full hardware integration environments. Passionate about engine architecture, performance optimization, and advanced algorithms for interactive systems.

Languages

English – Intermediate

Spanish - Native

Professional Experience

LSYM (Simmodar Training Solutions) – Universitat de València

Simulation Programmer

November 2024 – Present

- Development of heavy machinery simulators using **OpenSceneGraph (OSG)** and **PhysX 4/5**.
- Implementation of full hardware-integrated simulation systems.
- Optimization of physics and rendering pipelines for training environments.
- On-site deployment and installation of simulation systems (hardware/software).
- Collaboration with clients for environment configuration and system customization.

FORMA ROBOTI-K SL

Arduino Instructor

August 2024 – November 2024

- Delivered Arduino programming lessons to children.
- Designed structured educational exercises focused on logic and electronics fundamentals.
- Fostered problem-solving skills through practical robotics projects.

Technical Projects

Fluid Simulation (Water)

September 2023 – July 2024

Final academic project focused on real-time fluid simulation.

- Implemented particle-based fluid simulation.
- Designed and implemented a spatial acceleration structure for efficient neighbor search.
- Developed using a custom OpenGL engine.
- Emphasis on performance optimization and real-time visualization.

OpenGL Graphics Engine (C++)

September 2023 – May 2024

Team project (3 developers).

- Developed a modular graphics engine in **C++ with OpenGL**.
- Implemented rendering pipeline architecture.
- Integrated **Conan** for dependency management and **Premake** for build configuration.
- Developed using Visual Studio 2019.

GPU Cellular Automata

January 2024 – May 2024

Team project (3 developers).

- Implemented cellular automata optimized for execution on **GPU architectures**.
- Focused on parallelization strategies and performance analysis.
- Developed in C++.

SDL Solar System Simulation

January 2023 – May 2023

Team project (2 developers).

- Developed a real-time solar system simulation using **SDL**.
- Implemented orbital mechanics visualization and rendering systems.

Education

HND in Videogame Programming

Escuela Superior de Arte y Tecnología (ESAT - Valencia)

2021 – 2024

Scientific and Technical Baccalaureate

IES Berenguer Dalmau (Catarroja, Valencia)

Technical Skills

Programming Languages

- C, C++, C#, .NET
- Python
- HTML, SQL

Graphics & Simulation

- OpenGL
- Vulkan API
- PhysX 4/5
- OpenSceneGraph (OSG)
- Unreal Engine 5
- Unity

Tools & Platforms

- Visual Studio / VS Code
 - GitHub / Perforce
 - Conan / Premake
 - Jira / Mantis
 - Windows / Linux
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Soft Skills

- Teamwork
- Adaptability
- Effective Communication
- Attention to Detail
- Critical Thinking
- Time Management