

Alan Gutierrez Ramirez

Software Developer | C++ & Computer Graphics

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PROFESSIONAL SUMMARY

Performance-driven **Software Developer** specializing in **C++**, **Computer Graphics**, and **Real-Time Simulation**. Proven experience developing custom 3D engines using **OpenGL** and **PhysX**. Skilled in building robust tools for heavy machinery training and optimizing physics models for high-fidelity environments. Strong background in the complete graphics pipeline, linear algebra, and database management.

TECHNICAL SKILLS

- **Languages:** C++, C, C#, Python, GLSL/HLSL, SQL.
- **Graphics & Physics:** OpenGL, DirectX, PhysX, Real-Time Rendering, 3D Math/Linear Algebra, Knowledgeable with Vulkan
- **Engines:** Custom Game Engines, Unreal Engine 5, Unity.
- **Tools & Version Control:** Visual Studio, Git, Perforce, CMake, RenderDoc.
- **Core Competencies:** Object-Oriented Programming (OOP), Memory Management, Multithreading, Engine Architecture, Debugging & Optimization.

WORK EXPERIENCE

Junior Software Developer | LSYM - Laboratorio de Simulación y Modelado

Valencia, Spain | Nov 2024 – Oct 2025

- **Tool Development:** Engineered a C++ based test-creation tool to streamline workflow for heavy machinery training, improving instructor efficiency and user assessment capabilities.
- **Simulation Optimization:** Accelerated project timelines by performing rigorous QA, debugging, and code optimization on core engine mechanics and physics models.
- **Database Design:** Designed and implemented a scalable SQL database structure for efficient simulation data management and retrieval.
- **Physics Implementation:** Contributed to a physics-based simulation platform, implementing core mechanics to ensure real-time performance and accuracy.
- **Documentation:** Facilitated international deployment by translating and standardizing complex technical manuals from Spanish to English.

RELEVANT PROJECTS

Graphics Engine Developer | JAM Engine (Custom C++ Engine)

Valencia, Spain | Portfolio Project

- **Engine Architecture:** Developed a custom 3D graphics engine from scratch using **C++** and **OpenGL**, handling memory management and the render loop.
- **Rendering Features:** Implemented advanced graphics techniques including real-time lighting, shadow mapping, volumetric lighting, and particle systems.
- **Systems Integration:** Built an integrated sound manager and entity-component system (ECS) architecture.
- **Documentation:** Created comprehensive technical documentation demonstrating code structure and API usage.

Game Developer | Shelley Manor (PC Game)

Valencia, Spain | Student Game Studio

- **Development & Release:** Collaborated within a multidisciplinary team to develop and successfully release a narrative game on **Steam**.
- **Awards:** Won "Best Student Game" (Latam Games Com 2025) and ranked Top 5 Best Hobby Game (GDWC Winter Season).

EDUCATION

Higher National Diploma (HND) in Video Game Programming ESAT

(Escuela Superior de Arte y Tecnología) | Valencia, Spain | Completed July 2024

- **Focus:** Advanced C++, Graphics Programming, Game Engine Architecture.

Coursework in Computer Science Gustavus Adolphus College | USA | 2014 – 2017

LANGUAGES

- **Spanish:** Native
- **English:** Fluent (Professional Working Proficiency)