

# Andrés Botero

Software, Engine and Game Developer

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## Summary

Skilled software developer specialized in game and engine development. I have extensive experience in creation of complex systems, graphics programming, software optimization in C++, C# and GDScript. Also have developed pipeline automations, and created workflows across teams for game production.

Currently working for a diagnostics team in a world leader silicon design/manufacturing company. I build and maintain a suite to stress test and benchmark custom silicon for validation and quality control.

I like to make an impact by implementing robust solutions to concrete problems, by closely understanding stakeholders needs and interests to come up with efficient engineering solutions.

*Please refer to page 2 for a comprehensive introduction of my experience.*

## Recent Work Experience

### Senior Embedded Engineer at Qubika for AMD

Project: , May 2025 – Ongoing

Support and develop the customer framework for functional and performance validation of semiconductor devices in pre-silicon and post-silicon stages.

- Update the suite code that communicates with Linux kernel to support new hardware architecture.
- Debug and develop the test suite to support new hardware features.
- Implemented a parallel suite for stress testing and benchmarking demo parts to ensure stable operation.

### Director of Engineering at Battle Road Digital

Project: Atom Engine, May 2022 – April 2025

Platform for running gameplay and simulation in globe-scale 3D space.

- Led the evolution of the simulation engine, from first prototype to a solid foundation to implement gameplay on top of it.
- Implemented the globe rendering technology and data pipelines to expose geographic data to gameplay systems.
- Designed our CI/CD pipeline
- Debugged and contributed fixes to Godot Engine project.
- Improved the developer speed by fostering the team skill set.

### Lead Game Developer at Pump Action Games

Projects: Halfwit Heroes, Almighty Idiots, Feb 2021 - May 2022

Mobile puzzle game with stylized 3D graphics and complex mechanics.

- Implemented systems like 3D movement, pathfinding, behavior tree AI.
- Implemented progression and tutorial systems, and tooling to allow these systems to be scripted by game designers.
- Implemented analytics and save game systems.
- Implemented automations with shell scripts and buildbot for delivering nightly builds on iOS and Android
- Led junior tech artists and engineers to work together to bring gameplay elements to life.

*Please refer to page 3 for a comprehensive breakdown of my experience.*

## Education

### Ingeniería en Multimedia

Universidad Militar Nueva Granada  
2011-2016

### JumpCamp: Diplomado de desarrollo de videojuegos.

Universidad de los Andes  
2015

## Skills

|            |                                                                                                                   |
|------------|-------------------------------------------------------------------------------------------------------------------|
| Languages  | <u>C++</u> <u>C#</u> <u>Python</u> <u>Javascript</u><br><u>Odin</u> <u>GLSL</u> <u>HLSL</u> <u>Powershell</u>     |
| Engines    | <u>Godot</u> <u>Unity</u> <u>Unreal Engine</u>                                                                    |
| Frameworks | <u>SDL</u> <u>GLFW</u> <u>Raylib</u> <u>Vulkan</u>                                                                |
| Techniques | <u>CI/CD</u> <u>DOD</u> <u>ECS</u><br><u>OOP</u> <u>IMGUI</u>                                                     |
| Tools      | <u>Blender</u> <u>Git</u> <u>Bash</u> <u>SSH</u><br><u>Visual Studio</u> <u>Renderdoc</u>                         |
| Topics     | <u>Computer Graphics</u> <u>Shaders</u><br><u>Networking</u> <u>Porting</u><br><u>Optimization</u> <u>3D Math</u> |

## Strengths

Effective at gathering requirements.  
Creative at problem solving.  
Striving for efficient solutions.  
Strong math foundations.  
Supportive to help team skills grow.  
Committed to continuous learning.

## Languages

Spanish: Native ●●●●●  
English: Proficient ●●●●○

# Introduction

Thanks for considering me for the position. Let me share my story with you at a slower pace, with a bit of chronological order. The first page of the CV is intended to drive an impact, but here I want to tell how I got to that point.

Let me start by saying I'm a software and game developer with varied experience in many fields and technical levels. Nowadays I am most interested in low level graphics engine programming, although I keep tabs on many other topics related to game dev.

I got started in development when Flash was a thing. I did some games and AR experiences when the tech was still young. After Flash demise, I did multiple projects including simple web apps and native apps for iOS, MacOS, Windows. These projects involved usage of platform APIs like graphics, network service discovery, motion sensors, etc...

As I finished college I got very invested in graphics and the technology behind game engines. I took part in projects where I contributed with gameplay development, but also found myself guiding artists and other programmers to understand and make better use of the engine graphics pipelines. As projects and teams got larger. I also worked on implementing tools for other parts of game development like asset pipelines, translations, game design scripting, automated tests, builds, deployments, etc...

I recently worked on some kind of engine where I implemented a system that draws a 3D globe using GIS datasets, and additionally exposes this data to be consumed by other game systems like navigation, movement, collision detection and line of sight detection. Cool stuff and cool people, but sadly the project (or rather, the business) went in a direction I disagreed with, so I decided to part ways with them.

I have some active side projects, some are games, and some other are tooling to aid in the development of games.

As for the non-game projects, I am currently writing a 2D graphics toolkit from scratch, in the hope of making it the base for a full engine. Before that, I made a Blender plugin to import/export scenes to Unreal Engine. I have also made automations for testing and deploying this plugin and the other personal game projects I have worked on.

As for game projects, one of them is a drone and model planes simulator, using aerodynamics physics and allowing the user to play with traditional RC controllers. The other game is a twist of a local game called Bolirana (similar to Skee-ball). These projects have growth potential, but for now they're paused because of the investment they would demand.

To wrap up this introduction, I want to emphasize my deep interest in being part of a project with deep technical challenges that lead to improved user experience and product quality. My main focus is on providing technical solution to problems, but I also have had success guiding teams to solid understanding of concepts and good engineering practices. And similarly, I have worked with stakeholders, reading through nuanced communication, to identify the true needs and propose an efficient engineering solution.

## A. Work Experience:

### 1. Senior Embedded Engineer at Qubika for AMD

*Team: Global Operations and Quality, Special Silicon Solutions, May 2025 - Present, C++, Linux*

Support and develop the customer framework for functional and performance validation of semiconductor devices in pre-silicon and post-silicon stages.

- Handle big git repos with divergent history to bring features back to upstream.
- Update the suite code that communicates with Linux kernel to support new hardware architecture.
- Run the test suite in simulator and pre-release units for validation of code and hardware.
- Debug and develop the test suite to support new hardware features. This included debugging and root-causing issues that would completely freeze the device.
- Implemented a suite for running benchmarks and stress tests from internal and external providers.
- Generate reports for stability, run time and cpu usage of benchmark processes.

### 2. Game Programming Teacher at Endless Access

TODO: add more information here.

### 2. Director of Engineering at Battle Road Digital

*Project: Atom Engine, May 2022 – April 2025, Godot, GDScript, C++*

We're making a 3D globe scale game board for wargaming. This project is being developed on top of Godot Engine. Some of the highlights of my contributions to the project are:

- Designed and maintained many of the systems in place, and ensuring correct interoperability between them.
- Implemented the system for drawing a 3D globe that loads tiles from different data sources at different LODs, and puts all of this together into a beautifully rendered 3D globe.
- Implemented an API for converting between geographic and cartesian coordinate systems.
- I also worked on some other tools related to 3D polygon drawing, OpenStreetMap buildings rendering, and loading vector data from GeoServer to Godot's navigation system.
- Designed our approach for multiplayer and implemented some systems to follow that approach.
- Implemented the backbone of our save game architecture, which also included some concepts like a timeline that can be rewound, and you can branch to a separate timeline to apply different strategies over the simulated scenario.
- Fix engine bugs in C++ and submit them to Godot's upstream repo.
- Laid down the pipeline for having custom engine builds to allow our devs to use both C++ and GDScript for development.
- Did advisory to my colleagues on many other topics related to the simulation, from visuals to systems design.

The results of this work are showcased in this video: <https://www.youtube.com/watch?v=EwulAW1Dcos>

### 3. Lead Game Developer at Pump Action Games

*Project: Halfwit Heroes, Almighty Idiots, Feb 2021 - May 2022, Unity, C#*

Led the game development from prototyping phase to late production. We used Unity and implemented many custom systems in C# for this project. This project was with the same team as Orbit Outlaws project (mentioned below) so this production happened with the strong foundations built on that project.

The highlights for this project are:

- Implementation of early systems, like 3D movement and behavior tree AI.
- Implemented progression and tutorial systems, so these complex condition steps can be scripted by game designers.
- This progression system was integrated with analytics to detect points of peak interest for the user.
- Implemented save games with user management between devices and with versioning system for old save compatibility.
- Implemented automations with shell scripts and buildbot for delivering nightly builds on iOS and Android
- Guided junior tech artists and engineer to work together to achieve good look and feel of environment that reacted to gameplay elements.

Unfortunately the game was canceled by the publisher. You can still see some recordings of the soft launch iterations we went through here:

- <https://www.youtube.com/watch?v=RVSA4TGc7fw&t=157s>
- <https://www.youtube.com/watch?v=SZOb6B0kMA8&t=297s>

## 4. Senior Game Developer at Innovations Media

*Project: Orbit Outlaws, May 2019 - Jan 2021, Unity, C#*

I started as senior developer, and grew to lead the project in many fronts. We started with a rigid game loop, and I helped to convert it into a dynamic experience with different game modes, vehicle configurations, multiplayer support, while improving performance and making systems simpler and extensible. All of this while raising the team technical skills.

Some specific highlights are:

- Refactored the game from a prototype with fixed rules to a modular framework that allowed multiple vehicles, pilots, etc.
- Implemented complex UIs reactive to multiple players, with multiple input methods and gamepads from different vendors.
- Implemented AI algorithms for predictive aiming with orbital projectile physics.
- Improved artists team dynamics by teaching and guiding them to effective use of source control.
- Improved engineers team dynamics by introducing branching and merging processes in a SVN project for a better ability to test and provide feedback on people work before committing to the main branch.
- Mentored artists to interact directly with the engine, letting them make better art and reducing the time they take from developers.
- Integrated support for Google spreadsheets and other tools to ease the work of game designers when tuning the game.

You can see some of the results here: <https://www.youtube.com/watch?v=YU-JoHID3X4>

## 5. Senior Game Developer at On3D Studios

*Project: Quantum Replica, Dec 2016 - Nov 2018, Unreal, C++*

I supported the development of the game in multiple areas such as:

- Implemented some of the movement system, minigames, UI and mission system.
- I also did a bit of engine development for porting to consoles and improving loading screen animations and handling per-platform button icons.
- Did some maintainance on the pipelines such as migrating a SVN server and setting up automated builds.

You can see how this game runs here: <https://www.youtube.com/watch?v=G1kT2wGcXWg>

## 6. Older work experience:

I did multiple experiences in Flash that I don't have links to show, but mainly consist on:

- AR projects in Flash with FLARToolkit
- A mobile game in Flash with Adobe AIR

I also had some web-related work experiences such as:

- React app to handle reservations of car wash services.
- Web game for Facebook games platform, to teach about negotiation skills.

# B. Personal Projects:

## 1. Engine: (no name yet) Multiplatform with SDL+Odin, 2026

I'm currently implementing a game engine with Odin language, using SDL as the foundation for rendering and cross-platform support. Among the included features are:

- UI layout and rendering
- UI Navigation with keyboard/gamepad
- 2D rendering with transform stack
- Background load of assets
- Compiles for Windows/Linux/Android/WASM

Check it out: <https://github.com/botero-dev/sdl-odin-boilerplate>

## **2. Game: SkyForce, 2023, in development, Godot.**

Skyforce is a prototype for a RC drone and airplane simulator. Intended as a platform that would serve many players. Starting from introducing and training pilots that are just getting in the field, up to collectors that would like to have their digital collection of beautifully crafted models, and also for competitive players that want to put their skills to test with other players.

## **3. Game: BoliFrog, 2022, in development, Godot.**

BoliFrog is a new take on traditional colombian game Bolirana. It plays similar to american game Skee-ball, but our version of bolirana has score tracking with new rulesets, ability to choose characters and play different game modes in teams or free for all.

BoliFrog connects to the arcade machine hardware, it detects the player's scored balls, and other physical buttons to configure the game mode. It also connects to RGB LED strips to give feedback to the player beyond the game screen.

<https://instagram.com/bolifrog>

## **4. Game: Rootarium, for GGJ2023, Godot.**

Rootarium is a cozy 2D pixel art game made for Global Game Jam 2023. The jam theme was "Roots"

<https://kichex.itch.io/rootarium>

## **5. Game: Saphi y el llamado de la tierra, 2023. Unity.**

Saphi and the Call of Nature is a game about exploring agricultural heritage in Colombia. You play as a capybara, Saphi, to find the ways of the extinct human race for growing food and working in community to get to peace and abundance. This game applied for government funding in Colombia,

<https://saphiland.itch.io/saphi-y-el-llamado-de-la-tierra>

## **6. Game: BoomTown, for Gamedev Colombia Jam 2020. Godot.**

Boomtown is a 3D game made in Godot for a game jam. The theme for the jam was "Chain Reaction"

<https://kichex.itch.io/boomtown>

## **7. Plugin: Blender Datasmith Exporter, 2020, Blender, Python:**

Datasmith Blender Exporter is a plugin that lets you export full scenes from Blender to Unreal Engine using Datasmith format. This exporter lets you transfer full scenes, including scene hierarchy, instanced static meshes, textures and materials with complex node setups, and meshes with modifiers.

<https://0xafbf.gumroad.com/l/blender-datasmith-content>

## **8. App: AB Launcher. in development. 2023. Godot.**

Interface that lets you launch games and see information for many games in a database. This is part of a large project that intends to showcase many games made in Colombia.

## **9. Tools: AB Tools. 2023. Bash and Powershell.**

Series of tools made to automate repetitive tasks around game development and publishing. Simplifies the handling of project versioning and engine version management when building games in Unity and Godot.

## **10. App: Bemote, iOS, Windows, Mac 2012:**

This was a iOS application that allowed you to control a computer's volume level. It used Bonjour (mDNS + DNS-SD) to discover computers in the same network. It required a separate helper app. It was done with native development for the platforms it was available (Objective-C for iOS app and Mac helper, C# for Windows)

<https://www.youtube.com/watch?v=FtamROcbz6o>

## C. Pubic Appearances:

### 1. Godot Engine Contributions

I contribute to Godot Engine from time to time. Please have a look at my contributions here:

<https://github.com/godotengine/godot/pulls?q=is%3Apr+author%3Abotero-dev>

### 2. VR in Godot from scratch, VR Day 2024 Colombia.

In this talk, I show how set up the environment to make VR apps/games in Godot, and show how to debug a game in realtime directly from the Godot editor.

<https://www.youtube.com/live/be-arWikipOc?si=NZwEmUhmbY4K51kh&t=8044>

### 3. Pre-jam Talks for Your Own Story Game Jam, Tan Grande y Jugando, 2023.

\* Exploring Godot Shaders: Bring your ideas to life easily and efficiently:

- <https://www.youtube.com/watch?v=tttZxOz2gLc>

\* Godot Exposed: Tips and tricks for fast and precise gamedev in Godot:

- [https://www.youtube.com/watch?v=zT5bZIMo\\_R4](https://www.youtube.com/watch?v=zT5bZIMo_R4)

### 4. Volunteering for game development events, Tan Grande y Jugando.

I volunteer for a local organization called **Tan Grande y Jugando** [1] where I do technical assistance in many regards such as:

- Web site hosting and maintainance.
- Technical management of hosted services, like itch.io or discord when running game jams.
- I run workshops as pre-jam activities for the game jams we host.
- I do engineering mentorship in the jams we host.
- I help with other technical task needed for running operations (e.g. processing spreadsheets of guests that take part of our events, to generate assistance certificates for them)

[1] <https://tangrandeyjugando.com>

## D. Random Facts:

- I started to implement a 3D engine from scratch with Vulkan and GLFW. I got to the point of loading textures and OBJ models.
- I migrated this engine from C++ to Odin language, additionally implemented font loading and basic UI rendering in Odin. <https://github.com/0xafbf/abengine>
- I once implemented a ImGui system on top of Godot 3: <https://github.com/0xafbf/godot-imgui>
- I have implemented python scrapers to download music files from websites
- Some time ago I implemented a python script to batch download satellite images from colombian mapping provider.
- I have solved close to 50 problems of Project Euler in python

## E. Education

- Multimedia engineering, Universidad Militar Nueva Granada, 2016.  
Notably, this has given me a strong foundation in math, physics, computer graphics and interactive applications.
- JumpCamp: Diplomado de desarrollo de videojuegos, Universidad de los Andes, 2015  
This was a good addition to find how to put in practice many of the theoretical aspects of the university studies.