

Alejandro Rodríguez

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PROFILE

Software developer with 8 years of experience as a research and development engineer at Pompeu Fabra University, and teaching roles in Computer Graphics and Game Development. Passionate about both coding and playing games, I completed a Master's in Design and Creation of Video Games to deepen my expertise. After launching EON: The Last Trial, I'm eager to bring my skills to new challenges in software development, interactive applications, or computer graphics.

EXPERIENCE

Research and Development Engineer

June 2017 – Present

Pompeu Fabra University

Barcelona, Spain

- Focus on **graphics, XR, and interactive technologies**
- Create multiplatform applications with custom engines using C++ and JavaScript

Assistant Professor

Jan. 2023 – Present

Pompeu Fabra University

Barcelona, Spain

- Teaching **Creation and Design of Electronic Videogames** (Design, Gameplay and Shading)
- Coding 2D and 3D games from scratch in C++ using OpenGL

Assistant Professor

Sep. 2018 – Jan. 2023

Pompeu Fabra University

Barcelona, Spain

- Teaching **Computer Graphics** (2D and 3D)
- From 2D to 3D shading using Physically Based Rendering
- Custom engine built in C++ using OpenGL

TECHNICAL SKILLS

Languages: C/C++, JavaScript, HTML/CSS, GLSL, WGLSL, HLSL, Python, GDScript, TypeScript, Java

Engines & Frameworks: Unreal Engine, Godot, Unity, ThreeJS, Node.js, React

Developer Tools: Git, VS Code, Visual Studio, CMake, RenderDoc

APIs: OpenGL, WebGL, WebGPU, Vulkan, DirectX

EDUCATION

Master Degree in Design and Creation of Videogames

2020 – 2021

Barcelona School of Management (Pompeu Fabra University)

Barcelona, Spain

- Created **EON: The Last Trial**. Alien souls-like with spatio-temporal mechanics
- Game and Engine created from scratch using C++/Dx11
- Worked in Engine, Gameplay and Render tasks
- farfetchedworks.itch.io/eon-the-last-trial

Bachelor Degree in Computer Science

2014 – 2018

Pompeu Fabra University

Barcelona, Spain

FCE (First Certificate in English)

2015

Cambridge School

Barcelona, Spain

High School - Technology Baccalaureate

2008 – 2014

Institut Torre de Malla

Barcelona, Spain

LANGUAGES

Spanish: Native | **Catalan:** Native | **English:** Professional Proficiency

PROJECTS

- MAX-R (H2020)** | *VR, SDF, WebGPU, Rooms, wgpuEngine* Sep. 2022 – May 2025
- Mixed Augmented and eXtended Reality media pipeline
 - Developed **Rooms, an XR-enabled tool for creating 3D content** (Dreams-like)
 - Created **wgpuEngine, a multiplatform C++ 3D engine using WebGPU**
 - github.com/upf-gti/rooms | github.com/upf-gti/wgpuEngine
- PRESENT and Sign-On (H2020)** | *PBR, 3D Animations, Virtual Avatars, JavaScript* Feb. 2021 – Sep. 2022
- Photoreal REaltime Sentient ENTity
 - Worked on web-based custom engines in **skin, hair and other physically based rendering properties**
 - Create natural virtual digital humans demonstrating emotional sensitivity
 - Sign Language Translation Mobile Application and Open Communications Framework
 - Worked on **Animics, a web-based 3D animation editor for virtual character signing**
 - Facilitate information exchange among Deaf people | github.com/upf-gti/animics
- SAUCE (H2020)** | *Smart Assets, Web, 3D Animations, Character Behaviours* June 2020 – Feb. 2021
- Smart Asset re-Use in Creative Environments
 - Created **tests, game prototypes and other virtual scenarios to demonstrate our 3D animation and character behaviour** design tools
- HDR4EU (H2020)** | *HDR, PBR, 3D Lighting, IBL* Jan. 2018 – June 2020
- Enabling End-to-End HDR Ecosystem
 - Developed a 3D web application showcasing the use of **HDR environments in a real-time PBR pipeline**
 - Created a web tool to build HDR maps for Image Based Lighting (IBL) from a set of SDR images

OTHER PROJECTS

- ShaderHub** | *WebGPU, Shaders, Graphics, JavaScript* Current
- WebGPU-based render and compute shader playground
 - github.com/upf-gti/ShaderHub
- LexGUI.js** | *UI, WebDesign, Frontend, JavaScript* Current
- JavaScript library for building web user interfaces, just pure HTML, CSS, and JavaScript
 - github.com/jxarco/lexgui.js
- Rooting Route** | *Godot, 2D, 3D, GameJam* Feb. 2023
- Video game created for the Global Game Jam Barcelona 2023 using Godot
 - itch.io/rooting-route
- Lockdown Reality** | *Unreal Engine, GameJam* Jan. 2021
- Video game created for the Global Game Jam Barcelona 2021, inspired in COVID scenario
 - Point and Click game mechanics using Unreal Engine
 - itch.io/lockdown-reality
- MANI** | *Unreal Engine, 3D, GameJam, Superliminal* Jan. 2021
- 3D video game created as a side project within the Master's in Design and Development of Videogames
 - **Superliminal** based mechanics
 - itch.io/mani
- The Time Hallows** | *Custom Engine, 2D, Teaching* Oct. 2019
- 2D Video game created in 1 week-end as a Teaching Asset
 - Using a custom engine made in C++
 - itch.io/the-time-hallows

PUBLICATIONS & ACHIEVEMENTS

- "A Cross-Platform, WebGPU-Based 3D Engine for Real-Time Rendering and XR Applications"** Sep. 2025
Web3D '25 Sienna (doi/10.1145/3746237.3746305) *Sienna, Italy*
- Grant Holder for Master in Design and Creation of Videogames** Nov. 2019
Barcelona School of Management (Pompeu Fabra University) *Barcelona, Spain*
- Best Academic Record in Computer Science** Nov. 2019
Pompeu Fabra University *Barcelona, Spain*