JUAN PACHECO

GRAPHICS, TOOLS, AND REAL TIME INTERACTIVE SIMULATION PROGRAMMER

CONTACT

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EDUCATION

BACHELOR OF SCIENCE IN COMPUTER SCIENCE IN REAL TIME INTERACTIVE SIMULATION (RTIS)

Digipen Institute of Technology Europe-Bilbao

2019 — 2023

| SKILLS

- Time management: Managed to finish both rasterizer API ports under the established target time (3 months).
- Adaptability: Jumped between different programming languages and codebase sections easily for different tasks.
- Self-learning: Learnt Vulkan, Raytracing Theory, and more graphics topics for different projects.

| PROGRAMMING

- C/C++
- Vulkan
- D3D12
- Metal
- Nintendo Switch Graphics API (NVN)
- OpenGL
- RenderDoc
- Nvidia Nsight
- Nintendo Switch GPU Debugger
- Xcode GPU Debugger
- Perforce
- Git

| LANGUAGES

- Spanish – Native
- English – C2 Level

PROFILE

Graphics and Tools programmer with more than two and a half years in the industry, currently working at Super Evil Megacorp as a Rendering Engineer. I love developing games, creating applications, and programming with C++ in my free time.

PROFESSIONAL EXPERIENCE

Rendering Engineer

Super Evil Megacorp / March 2023 – Present

- Researched and implemented graphics techniques in our in-house engine, such as PBR Bloom, Cascaded Shadow Maps, Atmospheric Height Fog, HBAO+, Global Illumination and SSAO Spatial and Time Denoiser, Upscaler, GPU Queries, Antialiasing, etc, across our various APIs (OpenGL, Vulkan, D3D12, Metal, and NVN).
- Developed tools for our games and editor, such as a GPU Profiler, Shadegraph Nodes, Post-Processing Volumes, Marquee Selection, Outline for selected objects, etc, to ease the development of our games.
- Improved performance, fix bugs, implement quality of life changes, and maintain our technology and code across PC, Mac, Android, iOS, Nintendo Switch, and Xbox X.

SHIPPED GAMES

Teenage Mutant Ninja Turtles: Splintered Fate

Super Evil Megacorp

PC – Switch – Xbox S – Xbox X – PS4 – PS5 – iPhone

- Ported our in-house engine to the Nintendo Switch Graphics API (NVN) to release our game on Nintendo Switch with improved performance and memory usage.
- Researched and implemented different Antialiasing (LXAA and FXAA) and upscaling methods to run the game at higher resolutions when the Switch was docked.

Blood Line: A Rebel Moon Game

Super Evil Megacorp

Android – iPhone

- Ported our in-house engine to Vulkan to improve performance and allow our engine to use multi-threaded rendering in Android.
- Implemented new techniques and tools to improve the game graphics, performance, and development.

PERSONAL PROJECTS

Human Skin Simulation

2023 – 3 Months

- Developed a fully working human skin (of 3 layers) simulation described in GPU Gems 3 using Vulkan.
- Researched and developed subsurface scattering simulation using a combination of diffusion profiles, texture-space diffusion, stretch maps, pre-scattering, post-scattering, and translucent shadow maps.
- Implemented skin reflectance simulation using the Beckmann distribution function.

GPU Raytracer

2022 – 1 Month

- Developed a fully working Raytracer in GPU using compute shaders in OpenGL.
- Implemented support for meshes, metallic, diffuse, and dielectric materials, anti-aliasing, any shape lights, and a customizable number of samples, and bounces.