João Silva – Graphics Programmer

I love learning and from a very young age have been fascinated with the technology behind games, specifically how one can generate a beautiful 3D world just from "a few" lines of code. This led me to pursue a degree in computer science and specialize in computer graphics and game development during my Masters. My efforts, both during university and my free time, allowed me to land a role as Graphics Programmer for VideowindoW, which I have had for over a year now. My knowledge includes computer graphics, gameplay programming, 3D math, among other things.

Professional experience

Graphics Programmer at VideowindoW [2021 – now] - Developed a real-time tree growth simulation to be displayed at airports, museums, schools and even at hospitals in transparent screens.

- Implemented a procedural tree growth algorithm, able to generate and grow different types of trees in real time from a set of parameters.
- Implemented procedural tree branch and leaf wind animation, dynamically influenced by a set of parameters in real time.
- Developed a rendering engine to efficiently, procedurally and realistically render trees with thousands of branches and leaves which included real-time shadows, depth of field and more.
- Optimized the entire application to work well on both lower-end and higher-end hardware.
- Reviewed code from other team members.

Technologies used: Rust, GLSL, OpenGL, RenderDoc, Blender, Git

Software Engineer at ISEL [2020] - Developed a mobile application for the students of Instituto Superior de Engenharia de Lisboa (ISEL) to be able to access and alter academic information through their phones. During this work I also created and published an open-source Android calendar component.

Technologies used: Kotlin, Android Framework, Git

Java Developer at REBIS Consulting [2019] - Created a tool to extract metadata from SAP BO Universes.

Technologies used: Java, SQL, REST API, Git

Education

MSc degree in Computer Science and Engineering specialized in Computer Graphics and Game Development from Instituto Superior Técnico [2020 - 2022] — All courses were related to computer graphics, game development, game AI and VR. Received a diploma of Academic Merit.

Masters' Thesis (Unreal Engine 5): Improving Believability through timing manipulation – Researched, developed and tested a system to add autonomous emotion expression to game characters in a fighting game developed in Unreal Engine 5. The results are currently in the process of being published at FDG2023.

Technologies used throughout the masters: C++, C#, GLSL, OpenGL, Unity, HLSL, Unreal Engine 5

BSc degree in Computer Science and Engineering from Instituto Superior de Engenharia de Lisboa [2017 – 2020]

Major Projects

DragonslayerEngine (OpenGL, C++) — An OpenGL rendering engine developed on my free time for real-time applications such as games. Implemented: Physically Based Rendering, FXAA, Cascaded Shadow Mapping, SSAO, Image Based- Rendering and more.

Shadertoy Demos (GLSL) — On my free time, I have worked on a few GLSL demos currently published on Shadertoy, most of them involved Raymarching signed distance functions (SDFs). The more recent one is a sea of LEGOs where pieces fall from the sky creating ripples in the water.

Barren (Unity URP) — Full length 3D game in final stages of development on Unity, developed by a team of 2 programmers, 1 artist and 1 game designer. Barren is a 3rd person exploration game with an emphasis on the movement system, which is built around the mechanic of changing between forms with different properties. I worked on shaders, procedural map generation, camera system and most gameplay mechanics.

Locus (Unity URP) — A 3D short game, developed solely by me, about an electrical breakdown that occurred in a space station and as a result the space suits of two astronauts only work when they move at the same time.

Burden (Unity) — is a 2D metroidvania game about self-isolation developed on Unity. I implemented all gameplay related features and a tool for the designer to specify how the camera followed the player.

Others — I have also worked on other projects that can be found on my website.

Information

Website:
https://jonibife.github.io/

LinkedIn:
http://www.linkedin.com/in/joao-af-silva

Email:
jonisilva@live.com.pt

Phone:
+351 936 575 848

Technical skills

Programming languages:

C/C++
C#
GLSL
Rust
Java
Kotlin

Tools/Software:

OpenGL
Unity
Unreal Engine 5
Android Framework
CMake
Visual Studio
Jetbrains IDEs
Blender
Photoshop

Languages

Portuguese: Native
English: Fluent
(Cambridge English: Advanced, C1)