

Highly skilled Software Engineer with a specialization in Tools/Graphics/Engine Programming for Game Development, offering extensive experience and a proven track record of successfully designing, developing, and delivering high-quality applications. Collaborative by nature, I thrive in multidisciplinary teams, collaborating closely with artists, designers, and producers to translate creative visions into functional, polished products.

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## TECHNICAL SUMMARY

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Programming Languages: C++, C#, Java, Objective-C

Concurrent Programming: Mutex, Conditional Variables, Promises, Multithreaded

Graphics Programming: OpenGL, GLSL, Compute Shaders, DirectX11, HLSL, Phong Illumination Model, Vulkan

Real-Time Systems Architecture: Graphic Engines, Tools Development, Design Documentation, Research Documentation

UI Frameworks: Qt (C++), Nuklear (C++), DearImGui (C++), WPF (C#), WinForms (C#)

Real-Time Networking: TCP, UDP, Lidgren Library with Message Driven processing

Use of Design Patterns: Object Pooling, Visitor, Observer, State Machines, etc...

Software Development: Agile, Scrum, Waterfall, Jira, XRay

Version Control: Perforce, GitHub

Graphics Debugger: RenderDoc, Visual Studio Graphics Debugger

Spoken Languages: English (Fluent), Spanish (Native)

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## WORK HISTORY

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**Tools Programmer**, Oct/2024 – Present

**Id Software** – Richardson, TX

(Developers of the most innovative and immersive worlds possible, powered by leading-edge technology, delivering intense gaming experiences)

- Developed and improved asset pipeline for our current main tool idStudio as well as idTech8 the studio proprietary engine.
- Streamlined the environment painting process by implementing painters for Vegetation, Water and Sky tools.
- Provided support for 3D asset pipeline, allowing integration with Motion Builder.

**Tools Programmer**, Feb/2023 – May/2023

**Deck Nine Games** – Boulder, CO (Remote)

(Developers of story focused video games as transformative entertainment experiences)

- Provided support for the development and design for the new tools pipeline for 2023.
- Developed and tested new features for scripting tools such as Spell Checker and Auto Completer.
- Maintained documentation for old and new code in Confluence.

**Software Test Engineer**, May/2015 – Feb/2023

**Swift Technologies / Hexaware Technologies**– Manassas, VA / McLean, VA

(Swift provides a service to enable the transfer of payments/securities to any bank world-wide)

(Hexaware provides top level IT professionals to companies as contractors)

- Performed UI testing for our application, identified and tracked defects and supported developers in resolving problems by completing additional tests.
- Created and maintained automation scripts to facilitate day to day activities as well as for automating test runs

**Software Developer**, Oct/2013 to Nov/2014

**DuPont Pioneer** – Salinas, PR

(DuPont Pioneer does research on GMO for corn and soy crops)

- Developed object-oriented software, including iOS apps for use in the gathering of data.
- Created C# .NET based applications used currently in Puerto Rico, Brazil, Hawaii and Georgia Stations
- Earned awards for innovation and maximized data collection effectiveness
- Developed fully interactive maps of bio domes and labs of their contents for Puerto Rico and Brazil stations.

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## PROJECTS COMPLETED

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*\*For more information as well as Design or Research Documents please look at the portfolio linked above.*

*\*\* These projects use custom File, Math, Manager and PCSTree libraries created by me.*

### **Real-Time Graphic Systems**

GDShader\*\* – **C++, OpenGL, ImGui, Google Protocol Buffers, GLB (Research Paper available)**

- Research of Shader Nodes for Visual Programming in custom game engines
- Nodes include, Add, Multiply, Normalize, Position, Output, Color with more being developed

GDImageProcessing\*\* – **C++, OpenGL, ImGui, Compute Shaders, Google Protocol Buffers (Research Paper available)**

- Processing of image effects using compute shaders on protocol buffer image files.
- Image effects include Bloom, Edge Detection and Invert.

GDConverter UI\*\* – **C++, OpenGL, Nuklear, DearImGui, Google Protocol Buffers (Research Paper available)**

- Application created for the conversion of GLTF (glb) files into Google protocol buffers, the custom UI created with Nuklear was created to ease the process of parsing the glb file and extrapolate elements the user might not need, this allows users to use the data they need in their engine, multiple prototypes were created with DearImGui as well as Nuklear.

GDGraphics Engine\*\* – **C++, OpenGL**

- Real Time application created to explore rendering options for OpenGL, using protocol buffers generated with our custom converter the application could display different types of 3D models as well as animations.

Graphics Pipeline Demos\*\* – **C++, OpenGL, DirectX11**

- Demos showcasing different render types as well as shaders in OpenGL and DirectX11
- Version 2 of my OpenGLDemo showcases precomputed mipmap upload as well as some upgrades to my GDEngine

### **Real-Time System Applications**

OmegaRace\* – **C#, Lidgren, Networking, UDP**

- Computer game turned multiplayer with a Client (Player1) – Server (Host) – Client (Player2) relationship model using Lidgren library to handle network conditions in UDP as well as apply Player Side Prediction and Dead Reckoning. In this relationship model clients send messages to the server application which performs physics calculations and then sends the game state to the clients to apply to their game state.

GDGraphicsEngine\* – **C++, Concurrent Programming (Design Document available)**

- This application uses multiple threads to manage audio files as well as playback in a real time environment using XAudio2.

Final Fantasy Demo\* – **C# (Design Document available)**

- Recreation of the first town of Final Fantasy to simulate a real time environment and apply multiple design patterns.

### **Shipped Titles**

Doom: The Dark Ages (2025) – **C++** (as part of idSoftware)

Life is Strange: Double Exposure (2025) – **C++** (as part of Deck Nine Games)

### **Finished Projects**

ODIN - **C#** (as part of Dupont Pioneer, 2013)

ODIN Mobile - **Objective-C** (as part of Dupont Pioneer, 2013)

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## **EDUCATION**

**Master of Science Degree:** Game Programming (Computer Science), August 2022

**DePaul University** - Chicago, IL

**Bachelor of Science Degree:** Computer Science, May 2014

**University of Puerto Rico at Ponce** - Ponce, PR