

Tools Engineer specialized in Game Environment Art, Animation and DCC pipeline tools, offering extensive experience and a proven track record of successfully designing, developing, and delivering high-quality real time applications. Collaborative by nature, thriving in multidisciplinary teams, working 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++ (7 years), C# (2 years)

Engines: C++ Proprietary Engines (7 years), Unreal Engine 5

DCC Tools: Maya (2 years), Motion Builder (2 years)

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

- Developed and improved various aspects of the asset pipeline for our tool suite idStudio as well as idTech8 the studio proprietary engine.
- Implemented front end Qt interfaces for the studio's environment tools, providing proper UX design to encourage use and creativity.
- Created and implemented the DCC Bridge, a tool to connect DCC Apps (Maya, Motion Builder) with idStudio to stream animations and Mocap captures directly to the engine, providing much improved turnaround times for deliverables.

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

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

- Designed initial implementation for the new tools' suite for 2023.
- Developed new features for scripting tools such as a custom spell checker and auto completer.

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

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

- Performed UI testing for applications, identified and tracked defects.
- 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

- Created and maintained the company's iOS app for use in the gathering of data (ODIN Mobile).
- Created C# .NET based applications used currently in Puerto Rico, Brazil, Hawaii and Georgia Stations (ODIN)
- 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.
- Created and implemented an alternative method to gather crop data by using a camera instead of a counting machine.

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## SHIPPED PROJECTS

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Doom: The Dark Ages Revelations (2026) – C++ (as part of id Software)

Doom: The Dark Ages (2025) – C++ (as part of id Software)

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

ODIN - C# and ODIN Mobile - *Objective-C* (as part of Dupont Pioneer, 2013) (internal release)

## 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 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**

- Local pvp 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.

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## EDUCATION

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**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