Vincent J. Liguori

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Dragon's Eye Productions, Austin, TX

Lead Client Engineer - Contract, March 2021 to May 2023

Description: Contracted for development of a Unity 3d mobile slot machine framework. The framework is used by Tangelo Games Ltd for their Best Casino Legends Slot 777 game and is available on the Google Play Store and iOS App Store. It currently has 4.3 stars with over 100k downloads on Google Play.

Responsibilities and tasks:

- Created UPM package through NPM with a private git URL
- Created tools to install prerequisite packages and layers
- Created API for front end developers to customize the slot environment
- Implemented Addressables API to load bundles
- Implemented Localization API for string and sprite localization
- Serialized and deserialized JSON data in a thread for game state and storage
- Implemented DG Tweening for the classic, individual, and cascading reel physics
- Implemented Spine animation for symbol animation
- Developed a proof of concept in Unity 3d with Node.js for a multiplayer isometric mobile game
- Implemented 2d animation walk cycles
- Implemented tilemap
- Implemented SocketIO for synchronizing transforms between clients

American Bureau of Shipping, Houston, TX

Unity Developer - Contract, August 2020 to Feb 2021

Responsibilities and tasks:

- Project Analysis and Feasibility
- Developing UI for massive data, and rendering massive 3d models with Unity, C#, Microsoft SQL, Visual Studio 2019
- Conversion of CAD models to a format complaint with Unity
- Prepared solid models for occlusion culling in Unity
- Prepared concave meshes for collision
- Developed scalable UI through reuse of offscreen UI components and multi-canvas management to support huge data set
- Deployed webgl build for Azure

Forum Energy Technologies, Houston, TX

Software Engineer, Sept 2012 to April 2020

Responsibilities and tasks:

- Researching the implementation of new features for the VMAX Engine
- Maintaining released software in the VMAX product line by fixing bugs and implementing new features
- Providing support to existing and new customers for licensing and bugs
- Developed a frontend to VMAX with C++, MFC, Visual Studio
- Managing startup of VMAX simulator in multi computer environment with C# and XML
- Implementing 3d model transformations using DirectX and matrix calculations
- Developing training and engineering scenarios with VMAX and Lua scripting
- Performing performance analysis with VTune for VMAX Engine to speed up rendering
- Developing plugins for 3d Studio Max, Inventor and Solidworks to export 3d geometry to VMAX
- Optimizing exported models through collapsing of hierarchies and culling of hidden surfaces
- Simulating a SONAR with raytracing
- Integrating a Control System of an XLX ROV with VMAX
- Piloting a simulated ROV to verify accessibility
- Writing technical manuals in Microsoft Word for customers
- Developing a product visualizer for FET marketing in Unity3d

Projects:

Title: VMAX Editor

Image: https://www.dropbox.com/s/kba5a9o0ht4tjhc/VMAXEditor.png?dl=0

Description: A development environment to create subsea training scenarios and usability studies on subsea equipment.

Contributions:

UI - Implemented buttons, properties, and tree hierarchies in MFC and C++
Transformations – Implemented 3d matrix transformations for model and collision placement
Model Editing – Implemented hierarchy editing of models for geometric model editing and exporting
Model Optimization – Implemented occlusion culling algorithm for removal of nonviewable geometry
3rd Party Integrations – Integrated Scintilla scripting environment for Lua scripting

Title: VMAX Simulator
Promo: https://www.f-e-t.com/subsea/software-and-control-system-solutions/vmax/
Description: A simulator for training ROV pilots and engineering validation of offshore equipment.
Contributions:
Optimization – Hotspot analysis with VTune followed by performance improvements gained through shader data caching, multithreading various computations and data locking optimizations, in C++.

Title: SONAR Simulation
Demo: https://youtu.be/Thxu5hPkv9g
Description: A SONAR head simulation to communicate with a Kongsberg MS1000.
Contributions:
SONAR Simulation – Developed with real-time raytracing in C++, SIMD, Boost, and spatial partitions.

Title: VMAX Scenario Development
Description: 3d training scenarios for ROV pilots.
Contributions:
Simulation – Implemented training scenarios to simulate subsea equipment with VMAX Editor and scripting with Lua.
Piloting – Recording and verification by piloting virtual ROV for customer.

Title: XLX 101 VMAX Control System
Description: An ROV Control System to let the user pilot the simulated ROV with a full console of controls.
Contributions:
Control System – XLX 101 Control System Integration into VMAX. Developed with C++ and XML.

Title: VMAX Launcher
Description: A configuration tool used to manage various processes and machines during the simulation.
Contributions:
UI – Implemented user interface in C#
Executable Management – Implemented multi computer, process management and setup options for launching the VMAX Simulator with C# and XML.

Title: VMAX Player
Manual: https://www.dropbox.com/s/it7sw26hfc7ub7n/VMAX%20Player%20Manual.pdf?dl=0
Description: An application that plays recorded VMAX training scenarios.
Contributions:
UI – Implemented buttons, properties, in MFC and C++.
Technical Manual – wrote technical manual for application.

Title: Plugin for 3D Studio Max
Description: An add-on to 3d Studio Max to export model geometry into a format that is compatible with VMAX.
Contributions:
Model Exporter – Created C++, 3d Studio Max Software Development Kit, and Direct X, to export to .X format.

Title: Plugin for SolidWorks
Manual: https://www.dropbox.com/s/gr52qhasbjdh52n/VMAX%20Solidworks%20DirectX%20Exporter%20Manual.pdf
Description: An add-on to SolidWorks to export model geometry into a format that is compatible with VMAX.
Contributions:
Model Exporter – Created with C++, SolidWorks Software Development Kit, Direct X to export to .FBX and .X.
Model Optimization – Joining neighboring meshes, collapsing mesh hierarchies, removing hidden geometry.
Technical Manual – wrote technical manual for application.

Title: Plugin for Inventor
Manual: https://www.dropbox.com/s/onoc8g1lzq833r7/VMAX%20Inventor%20Exporter%20Manual.pdf?dl=0
Description: An add-on to Inventor to export model geometry into a format that is compatible with VMAX.
Contributions:
Model Exporter – Created with C++, Inventor Software Development Kit, Direct X to export to .FBX and .X.
Model Optimization – Joining neighboring meshes, collapsing mesh hierarchies, removing hidden geometry.
Technical Manual – wrote technical manual for application.

Title: Product Visualizer
Description: A 3d, interactive display of equipment to help customers find parts. Viewer could dissect multipart CAD models with the purpose of identifying and purchasing subparts.
Contributions:
WebGL Model Viewer – Created with Unity3d, and C#.

Perpetual Fx Creative, Addison, TX

Intern Game Programmer, May 2010 to August 2010
GUI development with Actionscript and Scaleform in Gamebryo for PS3.

University of North Texas, Denton, TX

Teaching Assistant, Sept 2008 to May 2010
Algorithms, Data Structures, Advanced Game Topics, Computer Graphics, Lab Instructor in Java & C++

Certifications

C++ Institute
CPA-21-01 CPA - C++ Certified Associate Programmer

Committee on National Security Systems, National Standards
CNSS 4011: National Training Standard for Information Systems Security Professionals
CNSS 4013: National Training Standard for System Administrators in Information System Security

Education

University of North Texas, Denton, Texas
BS in Computer Science, Minor in Mathematics, Spring 2008
MS in Computer Science, Summer 2012

Skills

Operating Systems:	Windows, OSX, Linux
Programming Languages:	C++, C#, C, Lua, Java
Development Environments:	Microsoft Visual Studio, Unity 3d, Mono Development