Roland Munguia *Game Engine and Animation Programmer*

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SKILLS

Programming Languages
C, C++, C#, Python, Lua, GLSL

Platforms
Windows, Linux, Nintendo Switch [Familiar]

Soft Skills
Leadership, Communication, Time-management, Team-work, Working Remotely

API & Tools
SVN, Git + LFS, CMake, Doxygen, Valgrind, ImGui, RenderDoc, OpenGL, Vulkan [Familiar], Nintendo Switch SDK [Familiar]

Software
Visual Studio, Perforce, Gitlab, Github, Unreal Engine 5, Unity, Jetbrains IDEs

Technical Skills
Graphics Programming, Gameplay Programming, Engine Programming, Game AI Programming, Skeletal Animation

PROFESSIONAL EXPERIENCE

Animation Programmer Intern, *Epic Games* May 2022 – present
- Developing engine and editor features for ***Unreal Engine 5***.
- Speed up user workflow by improving debugging tools for animation systems and enhancing object introspection.

Engineering Intern, *Sledgehammer Games - Activision* May 2021 – Aug 2021 | Remote
- Prototyped wild life AI, stealth gameplay and user interface in ***Unreal Engine 4***.
- Refactored old AI behaviors and flocking agents to work with upgraded game systems.
- Collaborated with designers and artists for feature requests and asset integrations.
- Supported project milestone success by adding missing features and fixing bugs in gameplay and core systems.
- Participated in weekly meetings to showcase progress and gather input from teammates and management.

PROJECTS

3D Hybrid Rendering Engine, *Academic Project - Individual* Sep 2020 – Dec 2021
C/C++, OpenGL, ImGui, Windows, Linux
- Support for deferred rendering and forward rendering, Phong and Blinn-Phong illumination models, and 3D perspective camera.
- Implemented dynamic environment mapping, refraction, reflection, fresnel, distance attenuation, and multiple types of lights.
- Used custom Dynamic Octrees and BSP trees for rendering and handling collisions with models containing millions of vertices.
- Implemented GJK algorithm for collision detection along with a robust geometry toolbox for primitive intersections.
- Developed a hierarchical skeletal animation system with skinned meshes, custom VQS, quaternions, and interpolation methods.
- Implemented path animation using splines while supporting animation blending, user-defined speeds, and center of interest.
- Implemented physically-based real-time simulation and inverse kinematics (FABRIK).
- Developed multi-threaded asynchronous model and animation loader.

DeltaBlade 2700, *Handshake Firm - Team of 11* Sep 2021 – Dec 2021
Engine and Graphics Programmer - C/C++, Vulkan, ImGui, Git, Windows, Linux, Nintendo Switch
Original game was published on Steam and featured at PAX West 2019, 2020
- Collaborated and improved game engine's Vulkan graphics backend targeted to support Linux, Windows, and Nintendo Switch.
- Developed render queue with bucket sorting for optimal draw call submission to improve application performance.
- Assisted in porting original gameplay logic to the new game engine while maintaining the same functionality.
- Implemented custom console to facilitate rapid development of gameplay logic and core systems.
- Oversaw and led original Steam publishing processes and completion of technical requirements.

Curves and Surfaces Demo, *Academic Project - Individual* Jan 2021 – Apr 2021
OpenGL, ImGui, C++, Windows, Linux
- Showcased interpolation for Polynomial Functions, Bezier Curves, Splines Curves, and B-Spline Curves.
- Implemented De Casteljau and De Boor Algorithm for various parameterized polynomial curves.

EDUCATION

Bachelor of Science in Computer Science in Real-Time Interactive Simulation, Apr 2022 | Redmond, USA
DigiPen Institute of Technology
Relevant Coursework: Algorithm analysis, Data Structures, Operating Systems, Networking, Linear Algebra, Low-level programming, and Computer Graphics.

AWARDS

4x ESA Foundation Scholar, *Entertainment and Software Association Foundation*