Collin Longoria

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Education

DigiPen Institute of Technology Redmond, WA

Bachelor of Science in Computer Science in Real-Time Interactive Simulation, Minor in Math *Aug. 2022 – May 2026*

3.6 GPA

Experience

Teaching Assistant June 2025 – July 2025

DigiPen WANIC Program *Redmond, WA*

- Mentored high school students in programming fundamentals, data structures, and basic game programming in JavaScript.
- Debugged student code in real-time, identifying logic errors and teaching debugging strategies.
- Developed supplemental coding exercises and mini-projects to reinforce classroom material, including interactive projects using P5.js.
- Collaborated with the lead instructor to adapt lesson content based on student feedback and performance.

Projects

Trajan Engine | *C++, OpenGL, Vulkan, GLFW, ImGui* December 2024 – Present

- **Developed a modular, API-agnostic rendering pipeline supporting both OpenGL 4 and Vulkan**, enabling seamless integration of multiple graphics backends and setting the foundation for future extensibility.
- **Engineered an ECS architecture supporting both 2D and 3D games**, with real-time editor tooling via ImGui and GLFW, improving developer iteration speed and debugging efficiency.
- **Designed and implemented a unified render abstraction layer**, allowing game logic and editor systems to remain backend-independent, reducing coupling and maintenance overhead.
- **Maintained version control and issue tracking through Git**, using feature branches, squash merges, and rebasing strategies to ensure clean project history.

Elementokens | *C++, OpenGL* August 2023 – April 2025

- **Led engine-side development of rendering and gameplay systems**, building the foundation of a custom OpenGL game engine and tools for dynamic map rendering and turn-based logic.
- **Developed a flexible data pipeline for game content creation**, empowering designers to prototype and implement new content without requiring engine changes.
- **Implemented core gameplay systems in C++, including unit movement, combat resolution, and turn sequencing**, enabling a fully functional and scalable tactics framework.
- **Collaborated cross-functionality with designers to align gameplay systems with vision**, quickly iterating based on feedback to improve balance and usability.
- Wrote diagnostic tools for visual debugging and performance tracking, streamlining development and QA testing.

An Omen in the Mirror | *Unreal Engine 5, C++, Blueprints* August 2024 – April 2025

- **Developed modular puzzle systems in C++ for gameplay logic**, allowing designers to easily connect world elements and create complex interactions without additional code, dramatically improving iteration speed.
- **Collaborated with technical artists to prototype and polish unique shader effects**, contributing to the game's visual identity and puzzle clarity.
- **Built reusable gameplay components in Blueprints and C++**, including interactable, triggers, and logic gates, ensuring scalable level design with minimal rework.

Technical Skills

Languages: C++, C, GLSL, HLSL, C#, Lua, Python, JavaScript
Engines: Unreal Engine 5, Godot
Frameworks: OpenGL, Vulkan, SDL, GLFW, Dear ImGui
Developer Tools: Git, Perforce, Visual Studio, VS Code, CLion, CMake
Libraries: glslang, FMOD, Assimp, stb, GLM