

William Bender

Tools, graphics, and engine/simulations programmer,
with a specialty in custom game engines.

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Skills:

Game Engines:

- Godot • Unreal Engine
- Custom engines

Computer Graphics:

- 2D/3D Rendering
- Vulkan • OpenGL
- WebGPU • GLSL
- Real-Time Ray-Tracing
- 3D Animation Rendering

Languages:

- C++ (STL 20)
- Rust • C

Game Tools:

- Dear ImGui
- flecs ECS
- FMOD • SDL3
- Custom Editors

Mathematics

- Vector Calculus
- Advanced Physics
- Linear Algebra
- Curves and Surfaces
- Statistics
- Numerical Analysis

Other

- Custom ECS
- 3D audio
- Parallel Programming
- Algorithm Analysis
- AI • Data structures
- CMake

Relevant Projects:

Embedded Software Build Tools and Programming - FACTANIA - September 2025 →

- Developing a game for a legacy console utilizing modern build tools and programming principles, while managing the limitations of the hardware provided.
- Setup the project using CMake and Docker to manage the external build tools for the platform, allowing developers to use any editor and automated builds through GitHub.
- Implemented an on-device debug menu to view memory usage, build information and more to provide tools and tracking for testing.

Tools and AI Programmer – SHUTTLEFALL - September 2025 → December 2025

- Collaborated with a team of artists, designers, and other programmers to polish a 3D Unreal Engine game for a steam release.
- Created a Dear ImGui tool to track in-game statistics throughout a playthrough. Statistics are stored and can be replayed to track issues or see how players played through the game.
- Re-implemented the primary enemy AI to feel more dynamic and lifelike using Unreal's behavior trees and navigation.

Core ECS / Engine Developer - EC&WW - September 2024 → April 2025

- High-performance custom C++20/C# 3D engine with a team of 7 programmers, integrating the ECS (Entity Component System) pattern while maintaining an intuitive interface.
- Designed an archetyped ECS data structures to efficiently store and process large amounts of data, providing easy to use tools for both engine programmers and users.
- Created 3D audio system allowing for multiple simultaneous audio file playback.

Tech Lead / Engine Programmer - Shatterlight - September 2023 → August 2024

- Tech Lead for a team of 6 programmers and 4 game designers developing *Dine n' Bash*, a strategy and time management game published to the Steam platform.
- Led the development and implementation of a custom 2D C++ game engine from scratch using minimal low-level libraries (GLFW, FMOD Core, OpenGL, Dear ImGui).
- Implemented a specialized and performant 2d instanced renderer that allowed for 100k+ sprites to be drawn at a time while maintaining performance.

Education:

DigiPen Institute of Technology - September 2022 - June 2026

- **B.S. Candidate - Computer Science in Real-Time Interactive Simulation**
- **Minor in Mathematics**

Work History:

Low Level Programming (CS-315) Teaching Assistant – Winter 2025

- Aiding in curriculum development, specifically for a project to teach students the ECS pattern, and how to implement games and engines while being mindful of CPU cache.