

George Bolba

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PROFILE

Rendering engineer specializing in game development and real-time graphics, with a focus on production-ready output. Experience in working on Open Source projects and large code bases. Passionate about high-performance rendering pipelines with a keen interest in state-of-the-art rendering techniques.

PROJECTS

Thermite Engine - Custom Voxel Based Game Engine (Year 3) **Nov. 2025 - Present**

- Co-developed a Vulkan based Render Graph with support for resource creation, deletion, resizing (render targets, textures), Indirect Dispatch/Draw and easy compute/raster pass creation
- Implemented a GPU driven Particle System, while in constant collaboration with our art team
- Added TAA support for cleaner visuals, working on both the voxel objects and the particles
- Currently researching Bloom, Light Acceleration Structures and Volumetric Lighting

Spartan Engine Water - Year 3 Project **Sep. 2025 - Nov. 2025**

- Iterated on my existing Tessendorf Ocean Implementation, from Year 2, that generates Displacement and Slope Maps based on oceanographic spectra, using FFTs
- Researched Hexagonal Tiling methods to remove tiling artifacts, which led to more realistic visuals
- Experimented with Directional Flow, by exploiting Hexagonal Tiling, to introduce local waves
- Implemented Clipmap Geometry for improved performance and infinite ocean visuals

Nakon - Custom Engine FPS Game (Year 2) **Feb. 2024 - Jul. 2025**

- Co-developed and maintained the PS5 backend, while contributing to the RHI
- Performed extensive profiling while looking for optimizations, on both PC and PS5
- Close collaboration with the Art Team to develop effects such as Cell Shading and Rim Lighting

Niji Engine - Custom Engine (Personal) **Jul. 2025 - Present**

- Vulkan based Forward+ rendering architecture, with a render pass system and work in progress Tiled Light Culling Pipeline
- Physically Based Lighting with support for Directional and Point Lights, as well as Distant Probe IBL
- In-Editor Shader Editor, with support for Shader Hot Reloading
- Integrated EnTT for an ECS system, fastgltf for GLTF Model Loading and ImGui for easier debugging and Editor features

SKILLS

- C++, Slang, HLSL
- Vulkan, PS5 Graphics API
- Visual Studio, Renderdoc, RazorGPU, NvidiaNsight
- Git, GitHub, Perforce, CMake
- Romanian (native), English (full professional proficiency)

EDUCATION

Breda University of Applied Sciences (BUas)

Bachelors (BSc), Game Programming

Sep. 2023 - Jul. 2027