

DEBBIE LIKNES

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EXPERIENCE

Software Engineer (Graphics / Real-time Simulation)
BGI, LLC (U.S. Navy Simulation)

May 2023 - Present
Akron, OH

- Architecting Vulkan Scene Graph integration layer for existing raw Vulkan renderer, implementing efficient scene graph traversal and state management while preserving custom pipeline optimizations and reducing boilerplate code
- Redesigned event-driven input system architecture, reducing code duplication by 500+ lines and eliminating 15+ critical input handling bugs while maintaining real-time performance constraints
- Architected real-time particle system for dynamic weather simulation (rain, fog, smoke, clouds) with physics integration
- Developed GLSL shaders for aircraft damage visualization, directly enhancing operator situational awareness in live simulations

EDUCATION

Bachelor of Computer Science
South Dakota Mines

2017 - 2021

PROJECTS

Personal Game Engine (C++)

- Built cross-API game engine with hardware abstraction layer to support multiple rendering backends through unified API
- Implementing modern rendering pipeline: PBR materials, cascaded shadow mapping
- Designed Entity Component System with data-oriented architecture for cache-efficient performance and clean separation of concerns

PORTFOLIO

debbieliknes.dev

- WebGL demos, rendering projects, and technical blog on graphics programming

SKILLS

Graphics & Rendering:	Vulkan, GLSL, RenderDoc, WebGL, Unreal Engine
Languages:	C++, C#, Python
Specializations:	Real-time VFX, PBR, Performance Optimization