

Connor Fitzgerald

Graphics Engineer

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Job Experience

Graphics Engineer - Contract Dec 2024 – Apr 2025

Mozilla - *Firefox (WebGPU)*

- Solved critical bugs blocking shipping WebGPU on Windows.
- Implemented f16 support, allowing many AI workloads to run.
- Rewrote DX12 sampler descriptor management to resolve complex architectural issue preventing many applications from functioning.
- Triaged and resolved high-priority GitHub issues as part of ongoing open source maintainership.
- Reviewed contributions from internal and external contributors, keeping the community active.

Rendering Engineer - Contract Sep 2024 – Nov 2024

Let Eyes Equals Two - *Minecraft Clone & UGC Browser Game*

- Fixed, debugged, and optimized Rust/Vulkan renderer within a Minecraft-compatible game client.
- Upgraded shader infrastructure, porting GLSL shaders to the Slang shading language, filing key bugs upstream.
- Used ECS patterns to make modular and scalable game code.
- Helped ship a User Generated Content game platform prototype in 12 working days as part of a four-person team. Implemented graphics features like skyboxes, ambient occlusion, lighting, and shadows in WebGL2.

Graphics Engineer - Full Time Jun 2022 – Sep 2024

Modyfi Inc. - *Modyfi*

- Built and shipped core infrastructure for a realtime non-destructive image manipulation program that runs in the browser.
- Designed system for generating ergonomic Typescript/React bindings for a Rust/WebAssembly library.
- Took ownership over large system refactors to work around platform limitations.
- Built multiple testing solutions to ensure pixel-perfect accuracy when running on actual gpus.
- Managed Rust tooling and Rust/Typescript integration.

Graphics Engineer - Full Time Jan 2021 – May 2022

Sophya Inc - *SoWork*

- Designed and architected a ECS-based Rust/WebAssembly game engine to replace off-the-shelf Javascript game engine.
- Supported up to 250 concurrent users in a single room.
- Built asynchronous, seamless asset loading system.
- Designed data flows for low-overhead communication between game engine, game server, and database.

Memberships

Invited Expert W3C WebGPU Working Group

Worked alongside Google, Apple, Microsoft, and more to shape the WebGPU specification to be easy to use, powerful, and implementable. Brought my experience from building wgpu to improve the specification.

Education

Hunter College 2017 - 2021

B.A. in Computer Science New York City, USA

Open Source Experience

gfx-rs/wgpu Jun 2020 – Present

Lead Maintainer

- Developed a robust GPU testing framework to ensure correctness and stability across hardware vendors and operating systems.
- Built highly optimized resource state tracking infrastructure, resulting in performance improvements of up to 14x.
- Maintain CI that runs our test suite on every GPU API.
- Built infrastructure for supporting API extensions.
- Implemented support for bindless textures.
- Continued repository maintenance and process improvements.

BVE-Reborn/rend3 Sep 2020 – May 2024

Creator

- Implemented modular and composable rendergraph.
- Used Hi-Z occlusion culling, indirect draws, and descriptor indexing to optimize high-poly scenes.
- Balanced ease of use, performance, and customizability.
- Upstreamed many improvements into wgpu.

Skills

Rust • C++ • Python • WebAssembly (wasm) • Vulkan • D3D12 • D3D11 • Metal • OpenGL • WebGL2 • WebGPU • WGSL • HLSL • Slang • GLSL • ECS • Markdown

Tools

GitHub • Visual Studio • VSCode • git • NSight • Radeon GPU Profiler • Tracy • Renderdoc • PIX • Slack • Teams • Notion • HackMD