Conor O'Malley

conor4arms@gmail.com linkedin.com/in/conorpo github.com/conorpo conorpo.github.io/

Education

University Of Central Florida **Aug. 2020 – Dec 2023**

Bachelor of Science in Computer Science, Pegasus Gold Scholarship *Orlando, FL*

Relevant Coursework

- Matrix Methods in Data Analysis, Signal Processing, and Machine Learning
- Discrete Structures I & II
- Computer Graphics
- Differential Equations
- Exterior Calculus in Graphics
- Robot Vision

Technical Skills

- **Languages (in ∼order of proficiency)**: JavaScript, Rust, C++, WGSL, Python, C#
- **Developer Tools**: VS Code, git, bash, gcp, LLDB
- **Technologies/Frameworks**: WebGPU, TypeScript, Node.js & Bun, Express, React, MongoDB, Vulkan, wgpu

Experience, Extracurricular

Programming Team **Aug. 2020 – July 2022**

Varsity Member *University of Central Florida*

- Developed critical problem solving and team building skills while competing.
- Learned various additional computer science data structures, algorithms, and strategies.
- Practiced teaching and technical communication during weekly problem discussions.

Dosed Inc. **Aug 2018. – Feb. 2019**

Backend Developer *Remote*

- Worked to develop an online shopping web-application.
- Created database models, express middleware, routes, and services such as a role-permission service, a user service, and a shipping-address service.

StemEduc8 **June 2018 – September 2018**

Math and Computer Science Tutor *Orlando, FL*

- Worked with students to teach them computer science and math skills, both one-on-one and in a classroom format, with a focus on calculus and programming.

Projects

n-body-barnes-hutt-butt-bloom-tonemap-grain-screen-dirt | *Rust, wgpu, WGSL* **March 2023 - Present**

- Using wgpu and other rust crates such as egui, winit, serde, and web-sys, created a cinematic n-body simulation with an octree for acceleration adaptively constructed on the GPU.
- The renderer included HDR tonemapping; an industry grade bloom filter with progressive downsampling, upscaling and filtering; and a film grain generation model.

T.A.E.C.A. | *JavaScript, WebGPU, WGSL* **Dec 2023 - Jan 2024**

- Built a GPU accelerated elementary cellular automaton visualizer, with a custom "triangular" layout. Setup controllable parameters such as neighbor range, state count, initialization, and color mapping.
- Ruleset Initialization is also GPU accelerated, allowing for up to 5^5^10 unique configurations all simulating instantly on click.

WebGPU Marching Cubes (with Nick Stuhldreher) | *Javscript, WebGPU, WGSL* **Oct 2023 - Dec 2023**

- Using WebGPU, along with some niche libraries such as Dat.GUI and wgpu-matrix, implemented the Marching Cubes algorithm, constructing a mesh based on procedural noise and rendering it with a classic lighting model.
- WebGPU was under construction, forcing us to design and debug based off minimal examples and incomplete documentation.

Capstone Project : Electronic Enforcers | *Unity, C#, Blender* **June 2023 - Nov 2023**

- Made a military training simulator that allows players to test themselves in realistic electronic warfare scenarios.
- Used brand-new Unity paradigm DOTS, and maintained idiomatic Unity project structure.
- Divied up work based on Jira Tasks

Raymarching Mandelbulb Visualization | *Javscript, WebGL, GLSL* **January 2021**

- Using WebGL and ray marching algorithms, I created an in-depth visualization of the Mandelbulb (a three-dimensional extension of the Mandelbrot set) with advance camera controls and lighting. The rendering was done completely from scratch in a fragment shader.