





Matthew Schafer

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: www.matty-o.xyz
: www.github.com/LucidSigma

Self-motivated individual with an interest for all software engineering – from embedded systems to computer graphics to application development to front end. Currently looking for first time employment.

Technical Skills

Languages

Compiled/JIT: C, C++, Rust, C#, Java
Interpreted: JavaScript, TypeScript, Python, Lua, PHP, Ruby
Functional: F#, Haskell, OCaml
Other: HTML, CSS, Sass/SCSS, SQL, GLSL, PowerShell

Libraries/Frameworks

Games/graphics: SDL, SFML, OpenGL, Vulkan, WebGL, Unity
Web: jQuery, Node.js, Express.js, Redux, MongoDB/Mongoose, Ruby on Rails, Bootstrap, Semantic UI, React
Other: OpenAL, OpenCV

Tools/Systems

Editors/IDEs: Visual Studio, Visual Studio Code, IntelliJ IDEA
Embedded/SBCs: Raspberry Pi, Arduino
Version control: Git
Operating systems: Windows, MacOS, Linux (Ubuntu, Xubuntu, and Debian)

Projects

Full list of projects is available at my website (www.matty-o.xyz/portfolio) or on my GitHub page (linked above).

WorldBuilder

GitHub: <https://github.com/LucidSigma/worldbuilder> Hosted at: <https://young-waters-53007.herokuapp.com/>
Developed a Node.js web application with user content. Users can create planets and add comments to created planets. Features a login authentication system to allow users to edit/delete their own planets/comments. All data is managed with a NoSQL database (MongoDB). Website is designed using RESTful routing.

Technologies used: Node.js + Express.js, MongoDB, HTML5/CSS3, JavaScript, Bootstrap 4, Particles.js

OpenGL Voxel Engine

GitHub: <https://github.com/LucidSigma/Voxel-Engine>
Developed a voxel engine application with chunk loading and block placing/breaking. Integrates a custom-made 3D camera and 3D positional audio system with OpenAL. Demonstrates understanding of 3D graphics (with OpenGL), game engine architecture, linear algebra, and optimisation.

Technologies used: C++17, SDL2, OpenGL 4.6, GLSL 4.6, OpenAL 1.1

Vulkan Terrain Generator

GitHub: <https://github.com/LucidSigma/vulkan-terrain-generator>
Developed a 3D terrain generator with the Vulkan API (using simplex noise). Integrates a custom-made 3D camera and infinite procedural chunk loading/generation. Demonstrates an understanding of low-level computer graphics, game engine architecture, concurrency hardware/memory management, real-time diffuse lighting, and linear algebra.

Technologies used: C++17, SDL2, Vulkan 1.2, GLSL 4.5

Education

University of Southern Queensland Toowoomba, QLD 2017-2020

Major: Bachelor of Computer Science; graduated with distinction (GPA 6.54/7.00)

Minor: Applied Mathematics

Coursework: Programming, algorithms/data structures, embedded system design/development, operating systems, networking, web technology, algebra/calculus, differential equations, operational research.