

# Jonathan Bogie

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## EDUCATION

### University of Oregon

*Bachelor of Science in Computer Science, Minor in Mathematics*

Eugene, OR

*Sep 2020 – Present*

## TECHNICAL SKILLS

**Languages:** Python, C, C++, JavaScript, SQL, Lua, HTML, CSS

**Frameworks:** Apache, React, Angular, Django, Vue

**Libraries:** Pandas, NumPy, Matplotlib

**Engines:** Unity, Unreal engine, Roblox Studio

## PROJECTS

### Elixir2D | *HTML, CSS, JavaScript Frameworks, SQL*

Aug 2022 – Dec 2022

- An open source framework for HTML canvas powered web games
- Implements technical game-play features and modular CSS templates
- Setup an SQL relational database for tracking stats/scores

### Scaler Building | *Lua, Linear Algebra, Computational Geometry*

Jun 2020 – Mar 2021

- A system to construct and texture user-generated houses/structures
- Mathematical applications of triangulation, straight skeletons, vectors, and matrices
- Designed and implemented a GUI for improved navigation and user experience

### Cyclone Culling | *Lua, Octrees*

Apr 2021 – Jul 2021

- A module to dynamically render objects in 3D space
- Implements spatial querying and partitioning for optimizing large searches
- Features object pooling and level of detail configurations

### Portfolio Site | *HTML, CSS, JavaScript, SQL*

Oct 2022 – Dec 2022

- Fused my portfolio with the Elixir2D framework for an optional 'game view'
- Contains a series of levels to unlock info about me and refs to videos/docs/repositories

### Computer Model | *Python, ARM*

Sep 2020 – Jan 2021

- Modeled a basic computer inspired by the ARM instruction set architecture
- Features a CPU, general purpose registers, and a fetch/decode/execution cycle

### DejaVu Editor | *Lua, Flyweight*

Jul 2022 – Nov 2022

- Modular, template-based map editor for performant, large-scale map making
- Optimized to reduce memory, and compatible with Cyclone for culling

### Triangulation | *C++, Lua, Computational Geometry*

Jun 2020 – Aug 2020

- Polygon triangulation for adjacency (concave) and unordered (convex) lists
- Implements the ear-clipping and gift wrapping algorithms

### Documentation Sites | *HTML, CSS, React, JavaScript*

Jun 2021 – Jan 2023

- Created and deployed documentation wikis for my personal projects
- Built with Meta's "Docusaurus", with use of react and CSS based components

### Lossless Compression | *Python, C++*

Nov 2020 – Dec 2020

- Constructed an algorithm to compress JSON encoded packets based on LZW compression
- Benchmarked and monitored performance for thorough testing

## EXTRACURRICULAR

### Google Developer Student Club

Oct 2022 – Present

*Member*

- Collaborate with peers to gain technical skills through hands-on workshops using various Google API

### Game Development Club

Nov 2021 – Present

*Member*

- Worked together and individually to create, publish, and learn about video games with peers