Jonathan Bogie

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Education

University of Oregon Eugene, OR
Bachelor of Science in Computer Science, Minor in Mathematics *Sep 2020 – Present*

Technical Skills

Languages: C++, C#, C, Lua, Python, JavaScript
Frameworks: Django, React, Node, Vue, Angular
Libraries: Pandas, NumPy, MATLAB
Engines/Software: Unity, Unreal Engine, Blender, Photoshop

Projects

Cyclone Culling | *C#, Unity, 3D Graphics* Apr 2021 – Jul 2021
- Game tool for dynamically rendering objects with Unity's scriptable pipeline
- Implements spatial querying and partitioning techniques for optimizing large searches
- Features object pooling and level-of-detail configurations to reduce resource consumption

Scaler Building | *C++, Unreal Engine, Linear Algebra, Computational Geometry* Jun 2020 – Mar 2021
- A gameplay system that enables the construction and texturing of 3D user-generated structures
- Includes 3D mathematical applications of triangulation, straight skeletons, vectors, and matrices
- Developed a graphical interface with navigation and user experience in mind

Elixir2D Engine | *JavaScript, HTML, CSS* Aug 2022 – Dec 2022
- An open source engine for creating engaging object-oriented web games
- Implements API for 2D physics simulations, graphical interfaces, and input handling
- Leveraged an SQL relational database to collect, store, and analyze player data

DejaVu Editor | *C++, Lua, Unreal Engine* Jul 2022 – Nov 2022
- Template-based map editor for facilitating the design of more performant maps in games
- Features a graphical interface and interactive tools to improve the designer's workflow and ease
- Leveraged the flyweight design pattern to minimize duplication of shared data and reduce memory

Documentation Sites | *JavaScript, HTML, CSS* Jun 2021 – Jan 2023
- Created and deployed documentation wikis for developers to utilize API from my projects
- Features web development frameworks and component based design with React and Node
- Conducted testing to ensure optimal performance across multiple platforms and devices

Lossless Compression | *C++, Unreal Engine, Networking* Nov 2020 – Dec 2020
- Constructed an algorithm to compress JSON encoded packets for data transmission in games
- Optimized memory and processing time for compression operations to improve speeds
- Benchmarked and monitored performance with thorough unit testing

Portfolio Site | *JavaScript, HTML, CSS* Oct 2022 – Dec 2022
- Utilized Elixir2D to create a game-oriented portfolio showcase
- Engages visitors by showcasing my projects in a fun and creative way

Computer Model | *Python, ARM Architecture* 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

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