William Bundy

Targeting a game development/design position
Experienced with C/C++/Lua in game development settings, with multiple playable projects.

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Game Projects

Traceteroids (C, Win32, GLSL) 2017-18: Raytraced Asteroids
- Playable version of Asteroids, rendered by raytracing the scene in the fragment shader.
- Implemented without any external libraries.

Haven (C, SDL2) 2017-18: LD40 compo game; town simulator
- Implemented a largely-complete play experience in 48 hours, as part of the Ludum Dare game jam.

DustyWalkingSim (C, SDL2, GLSL) 2017: 2D exploration game
- Makes improvements to the physics from Rituals.
- Supports "infinitely" large worlds with good performance, with implementation of an infinite grid bounding volume hierarchy, using wb_alloc.
- Implements subpixel antialiasing for zoomed in pixel art, allowing for very fine motion of sprites.

Rituals (C/C++, SDL2, GLSL) 2016-18: 2D adventure game
- Implements a simple AABB physics library, comparable to classic games.
- Designed and implemented an immediate-mode GUI toolkit for menus and interfaces.
- Many of the problems encountered on this project have been direct inspirations for other projects listed.

Sparse (C#, SDL2) 2014-15: Survival/engineering platformer
- Made heavy modifications to the Farseer Physics engine (a Box2D port) to improve serialization.
- Iterated on an extensible game data loader. Using JSON, you can define, inherit from, and override any definition loaded.
- Designed and implemented a highly configurable proc-gen system for 2D worlds.

Tools Projects

wiggle (C++, FreeType, msdfgen) 2018: Font atlaser
- Creates multi-channel signed distance field font atlases with a single command, and can atlas existing textures together too.
- Extracts and embeds font metrics and kerning data from TTF and OTF files.
- Space Invaders demo shows off SDF rendering in action.

wb_alloc (C, Win32, Unix) 2017-18: Custom allocator
- Designed and implemented custom allocators in a single-header library.
- Allows for in-place resizing arrays by managing virtual memory across three OSes, without relying on system headers.
- Allocators can dramatically simplify low-level memory management.

VMFSketch (C, SDL2) 2017: Level design tool
- Quickly create floor plans for levels and export to any VMF-supporting editor.
- Analyzes geometry to ensure only valid brushes are generated for the BSP.
- Designed a modal interaction model, designed for two-handed use.

wirmpht (C/C++) 2016-2017: Header generator tool
- Parses struct, union, enum, and function declarations, including nested and anonymous structs.
- Saves time writing headers: output removes the need for forward declaration.

Work, Other Skills and Education

- 2016-present: Teaching children's art and design classes at a local art association.
- 2014-15: Tutoring students in Java at the University of Redlands.
- Strong skills in C, C++, C#, Python, and Lua; knowledgeable about JavaScript, Java, ActionScript/HaXe
- Experienced with modern C/C++ compilers and debuggers; comfortable with bash, Windows Batch, and git
- Two years at the University of Redlands, pursuing a Bachelor of Music in Tuba Performance and a Bachelor of Science in Mathematics. Not currently a student.