

James Heasman

Game & Engine Programmer

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Profile

Game and engine programmer with 11 years of hands-on programming experience, specialising in low-level systems, engine architecture and gameplay. Builds dependency-light technology from scratch in C and C++, including Win32 platform layers, DirectX renderers, audio systems, asset pipelines, multithreaded simulation and development tools. Currently studying Computer Science and Music Production at Keele University.

Technical Skills

- **Core:** C, C++, C99, Win32, engine architecture, gameplay systems, memory management, multithreading
- **Graphics:** DirectX 11/12, Vulkan, OpenGL, HLSL, raymarching
- **Engines and frameworks:** Unity, Godot, SDL2/SDL3, MonoGame, Raylib
- **Additional languages:** C#, Odin, Rust, Java
- **Tools:** Git, WinDbg, RemedyBG, RAD Debugger, Visual Studio, CMake, Ninja, Make

Work Experience

Website Development Work Experience – John Arnold

- Completed work experience with John Arnold on a website developed using Vite during August of 2022.

Selected Projects & Experience

Woolly Meadows – Game & Engine Programmer

January 2025–present | C99, Win32, DirectX 11, DirectSound

- Developing a Sokoban-style farming puzzle game without an engine or third-party libraries; responsible for all programming, game and level design, music and sound effects.
- Built the platform layer, renderer, low-latency audio system and texture-atlas asset pipeline from scratch.
- Implemented dynamic code recompilation, hot asset reloading and full game-state recording/replay for rapid debugging.

The Z Team – Game & Engine Programmer

December 2023–February 2024 | Paid collaboration | C#, MonoGame, FMOD

- Co-developed a squad strategy game capable of running hundreds of destructible-environment zombies, sharing programming responsibility equally with one other developer.
- Created polygonal navmesh-authoring tools and Dijkstra-style preprocessing that reduces each zombie's next-region path decision to a table lookup, designed to scale to thousands of agents.
- Implemented floor-mesh generation, vision-cone-based fog of war and FMOD-powered 3D audio.

Open-World Cellular Physics Engine – Game & Engine Programmer

June 2026–July 2026 | C, Win32, software rendering

- Built a Terraria-style infinite world with Noita-inspired cellular material simulation, custom chunk streaming and a growable hash table for inactive world state.
- Parallelised simulation through a thread pool using four checkerboard update phases, allowing particles to cross chunk regions without data races.
- Structured game memory using reserved virtual-memory blocks and lifetime-based arena allocators to minimise allocations and simplify memory safety.

Boulder Brothers – Game & Engine Programmer

March 2023–December 2023 | C#, MonoGame, Roslyn, Dear ImGui

- Co-developed a two-player puzzle platformer and built its level-editing and visual-effects tooling.
- Used Roslyn runtime compilation to let artists script particle emitters and inspect changes live, with editable parameters exposed through Dear ImGui.

Education & Community

Computer Science & Music Production, Joint Honours – Keele University | Expected 2027

Active participant in the Handmade Network and Handmade Cities community; attends the Handmade London meetups.