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About me

I am a fourth-year computer science undergraduate undergoing my masters in high-performance graphics and games engineering.

Designing and programming video games is a great passion of mine, along with illustrations and designing fictive worlds and stories.

Education

All current modules in university master's year (2024-2025)

Game Engine Project	81%
Modelling and Animation	95%
Foundations of Computer Graphics	84%
Advanced Rendering	75%
Research Seminar	98%

Eaton Bank Academy A-Levels (2018-2020)

Physics	A*
Maths	A*
Art	A
EPQ (3500 word report documenting video game creation)	A*

Eaton Bank Academy notable GCSEs (2013-2018)

Physics	9
Maths	8
Computer Science	8
Art	8

Notable Academic Projects at the University of Leeds (2020-2025)

The Ubiquitous Reality Game Engine (2025)

Created a game engine in a team over a three month period. I focused specifically on the Entity Component System, event handling, pooling custom scripts, and unique shader effects among other subsystems. I then used this engine to create the showcase game "Axiom Swerve", a vehicle based bullet hell game, displaying the engines different rendering effects. At GR Student Showcase 2025, our engine won 1st place in the Games Technology category judged by Red Kite Games.

Tools: C++, Vulkan, glsl, premake, cmake, SDL, glfw, glm, profiling tools, audio library, Dear ImGui, Jolt Physics

Animation and Physics simulation (2025)

A two part project, firstly demonstrating animation of a stick figure (using bvh files for animation data) blending between running and idle animations. Secondly, a demonstration of physics simulation between dodecahedrons and other different surfaces.

Tools: C++, OpenGL

Advanced Rendering Projects (2024-2025)

Another project which focuses on two separate parts. Firstly, a monte-carlo path tracer demonstrating various techniques such as reflection, shadows and the Fresnel effect. Secondly a real time Vulkan renderer using BRDF shading, using multiple render passes to include different post processing effects and debugging visuals.

Tools: C++, Vulkan, glsl, premake, glfw, glm

Manifold Mesh Processing toolkit (2024)

A modelling program designed to parse a .obj structured file, determine geometric shape properties, compute mesh repair and compute mesh simplification.

Tools: C++

Emulating an art style using shaders in Unreal Engine (2024)

A project done for my 3rd year individual project. An Unreal engine shader pipeline that emulated a chosen artists style using a variety of post processing shaders. In Particular, this included cel shading and edge detection using both curvature based computations and standard edge detection kernels (e.g sobel).

Tools: usf (Unreal Shader File - HLSL based), Unreal Engine

Other Projects

GMTK Game Jam 2024 - BaB: Using the Unity game engine to create a 2D game based on the idea of scale, focusing on small task completions to build an ever growing mechanical device. I was the soul artist/ animator and a joint programmer on the project. Ultimately unsatisfied with the result of the project, me and my brother aim to have this game finished and polished within the first half of 2025.

Ludum Dare 54 - Space Ltd: Using the Unity engine to create a 2D video game about fitting objects in a backpack for people to fly into space. I was the soul artist/ animator and joint programmer on this project. We scored in the top 30% in all categories (63rd in humour out of 2100 entrees!)

Brackeys Game Jam 2023.1 - Descent into Memories: Using the Unity engine to create a 2D rogue-lite video game based on fighting further and further into a person's mind. I was the soul artist, animator, sound engineer and programmer on this project.

Extended Project Qualification (2018-2020) - PushBlock: Using the Unity game engine to create a 2D platformer puzzle game; pushing blocks onto buttons in a variety of different ways. I then wrote a 3500 report documenting the process of designing, programming, drawing and creating sound for the video game.

Other Experience, Activities and Achievements

- Two months' work as a **production operative** at Siemens (2022)
- Worked on **reception** in a podiatry clinic (2022 & 2023)
- A week's **work experience at Egplant**, a software development company for quality assurance testers (2019)
- Chosen to compete in **UK Maths Trust's** intermediate and senior team challenges
- 12 years of **Scouting**
- Attended **weekly helper sessions** to assist year 11 GCSE maths students (2020)
- **Teaching children to swim** at Congleton Leisure Centre (2018-2020)
- Checking tickets at the gate and advertising Scouting as a volunteer at **CarFest North** (2019)
- Weekly **cub scout leader helper** sessions (**2017**)
- Duke of Edinburgh Bronze Award
- Won **best rollercoaster** in Siemens's Roller Coaster Challenge
- Completed **NCS** (National Citizenship Service)