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About me

I am a computer science graduate with a first class MEng in Computer Science with 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 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 Module (Medial Axis Sampling)	**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

Academic and Personal Projects

Game Engine Project (Titled: "Ubiquitous Reality")

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

- Created a game engine in a team over a four month period.
- Worked on: Entity Component System, event handling, pooling custom scripts, physics systems, input handling, user interface, debugging features and unique shader effects.
- Used the engine to create the showcase game "Axiom Swerve", a vehicle based bullet-hell game.
- At GR Student Showcase 2025, our engine won 1st place in the Games Technology category judged by Red Kite Games.

Animation and Physics simulation

Tools: *C++, OpenGL*

- Developed an animation system, using bvh files for animation data. blending between different animations.
- Created a physics simulation between dodecahedrons, spheres and differently shaped planes.

Unity Project (Titled: "BaB")

Tools: *C#, Unity Engine, Procreate*

- Joint Developer of a 2D game based on the idea of scale, focusing on small task completions to build an ever growing mechanical device.
- Started as a submission for the GMTK Game Jam 2024.
- Expanded into a large scale project over the course of a year and experienced full development life cycle, including design, implementation, QA testing and bug fixing.
- Soul artist/animator and a joint programmer on the project. .

Unity/EPQ Project (Titled: "PushBlock")

Tools: *C#, Unity Engine, Procreate*

- Soul developer of a 2D platformer puzzle game; pushing blocks onto buttons in a variety of different ways.
- Wrote a 3500 report documenting the process of designing, programming, drawing and creating sound for the video game.

Emulating an artist using shaders in Unreal Engine

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

- Developed an Unreal Engine shader pipeline which emulates a specific chosen artist's style using a variety of post processing shaders.
- Displays cel shading and edge detection using both curvature based computations and standard edge detection kernels (e.g sobel).

More Projects

Advanced Rendering Projects

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

- Programmed a monte-carlo path tracer, demonstrating various techniques such as reflection, shadows and the Fresnel effect.
- Built a real time Vulkan renderer using BRDF shading. This used multiple render passes to include different post processing effects and debugging visuals.

Manifold Mesh Processing toolkit

Tools: *C++*

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

Space Ltd - Unity Project - Ludum Dare 54

Tools: *C#, Unity Engine, Procreate*

- A 2D game about fitting objects in a backpack for people to fly into space.
- Soul artist/animator and a joint programmer on the project.
- Scored in the top 30% in all categories (63rd in humour out of 2100 entrees!)

Descent into Memories - Unity Project - Brackeys Game Jam 2023.1

Tools: *C#, Unity Engine, Procreate*

- A 2D game about fitting objects in a backpack for people to fly into space.
- Soul artist/animator and a joint programmer on the project.

Other Experience, Activities and Achievements

- Two months' work as a **production operative** at Siemens (2022)
- Worked as a **trading assistant** at Sainsburys (2023)
- Worked a few shifts on **reception** in a podiatry clinic (2022 & 2023)
- A week's **work experience at Eggplant**, 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)