

Hey, I'm Matt!

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About Me

I'm a Unity developer at Ultraleap with a passion for software development. In 2020 I graduated from my Games Technology degree at the University of the West of England with First Class Honours at the top of my class.

My experience in both paid and non-paid work covers projects in a range of languages such as **PHP**, **JavaScript**, and **Python**, with my core strengths being in **C#** and **C++**. I've worked with a diverse range of APIs and am always keen to learn and take on a new challenge. Through solo and team projects I have gained a solid understanding of **Git** for version control and **Jira** for project tracking. From low-level projects in **DirectX** to creating attractive frontend menus in **Unity**, I've always tried to vary my work in order to allow myself to quickly adapt to any task given to me. I'm always comfortable taking a leadership role.

In my spare time outside of work I am currently developing a suite of mod tools for the game Alien: Isolation which allow for the creation of custom maps and missions, as well as modifications to behaviour trees and various configurations. Working on these tools (named OpenCAGE) has given me the opportunity to chat to a range of the game's original development team, and has been a great insight into what it takes to produce a pipeline for AAA projects. OpenCAGE has also caught the attention of various media outlets (PC Gamer and Eurogamer, among others) and introduced me to the YouTuber "AI and Games", who I partnered with to make a video exploring Alien: Isolation's systems which has now reached almost one million views.

Work Experience

- **Unity Engineer, Ultraleap (November 2020 to present)**
 - o At Ultraleap I develop cross-platform internal/external demos and client projects in Unity, showcasing the best of our industry-leading hand tracking and mid-air haptic technologies in virtual reality. I'm currently lead developer for our two flagship projects: XR Launcher and Blocks, both of which have had industry-wide acclaim from companies such as Qualcomm and Pico. These demos regularly visit trade shows such as CES and IAAPA, with Blocks able to be downloaded from Ultraleap's website. Both demos support Android and Windows VR platforms, building via a cross-team CI pipeline which I developed to speed up our release process.
- **Game Programmer, PlayWest (August 2019 to November 2020)**
 - o At PlayWest I worked in a team of 5-6, using Unity to develop educational games for the University of the West of England. My role in our larger projects was typically tools and systems, however I was often given solo projects to rapidly prototype and push to release. Working at PlayWest was good experience for managing workloads, communicating with externals, and working with a team closely in a professional environment for the first time. Following the COVID-19 regulations in 2020 we quickly adapted to working remotely.
- **Tools Programmer, University of the West of England (July to August 2020)**
 - o Over the summer of 2020 I took part in two internships with UWE. The first internship required me to produce a 3D toolkit for importing/editing/exporting scenes with support for plugins to handle custom file types. This was developed from scratch in DirectX11 and is planned to be used in some upcoming research projects. The second internship tasked me to build an online postcard generator utilising machine learning, intended for use in enhancing visitor experiences to attractions. The web app utilised GPS and the Google Vision API to generate context from images, and a trained machine learning model to generate poems to the context.
- **Extra Choice, Homebase (February 2016 to March 2019)**
 - o At Homebase I worked in the kitchen department to take and manage orders. In my spare time outside of work I developed a signage generator tool which massively improved the process of producing signs for use in store: speeding up creation time and eliminating human error. The tool was picked up by regional management and used across multiple stores, with very positive feedback.
- **3D Web Developer, University of the West of England (June to August 2018)**
 - o At this ten-week internship I worked with an organisation known as Artstation on a lottery-funded project for Keep Wales Tidy. The aim of the internship was to produce a WebGL pointcloud demo to showcase the potential of modern web technologies for interactive tours around historical sites in Wales. Following the internship, the demo was presented to the Welsh Heritage Lottery fund - which subsequently secured the group their next phase of funding for the project.

Education

- **University of the West of England, Games Technology BSc(Hons)**
 - o Attended September 2017 to July 2020
 - o Achieved Bachelor of Science with First Class Honours: **year 1** - 71.5%, **year 2** - 78.9%, **year 3** - 75.5%
- **North Somerset Enterprise and Technology College, IT Practitioners Extended Diploma**
 - o Attended September 2015 to June 2017
 - o Achieved IT Practitioners Extended Diploma with D*D*D*: **18 modules** - distinction
- **Priory Community School**
 - o Attended September 2010 to June 2015
 - o Achieved bronze DofE, L2 Mobile App Development, and 11 GCSEs: **English** - A*, **Maths** - A, **Science** - A

Projects

- **OpenCAGE (2017 to present)**
 - o OpenCAGE is a project to allow users the ability to modify behaviour trees, textures, and a range of other configurations in the game Alien: Isolation. In my spare time I'm working on reverse engineering the game's scripting format, alongside a fully 3D editor for the game. While working on the project I have spoken to a lot of the original team which has been a great learning experience.
- **Don't Walk By (2020)**
 - o Don't Walk By a project developed across the entire Games Tech cohort at UWE. I took the role of tools programmer and handled the creation and maintenance of the backend content management tools for all 40+ students on the project. As well as this, I developed the game's grid-based level management system and user-facing level editor in Unity.
- **Polygon Fitness (2020)**
 - o This was a project rapidly developed by me and a 3D artist at PlayWest over a couple of weeks to run alongside the national Row Britannia event. Situated in the lobby of UWE, the game was connected to two rowing machines and allowed users to physically row around landmarks in Bristol. Stats from the rowers were logged to a remote database and displayed on a stat tracking website.
- **Level Streaming System (2020)**
 - o I developed a system in DirectX11 for building levels which can be streamed at runtime. This project was an exercise for me in creating a very simple and efficient "game engine" from scratch in C++, with tools and an external asset pipeline created in WinForms.
- **Skybox Generator (2019 to 2020)**
 - o For my dissertation I aimed to create a toolkit that can produce realistic skies for use in games. While developing the project I worked to solve a number of novel issues such as HDR upscaling and cloud depth sampling from LDR images. The project allowed me to work across multiple languages and interfaces, including: MATLAB, Python, shell script, PHP, C#, C++.
- **Mario Kart DX12 (2019)**
 - o As part of our engine programming module at university, me and a team of three other students developed an engine in DirectX12 with bespoke content management tools for the game Mario Kart. My role in the team was to produce and maintain our entire asset pipeline: consisting of low-level asset handling scripts in-engine, custom file formats to be read and written, tools to handle importing and converting asset formats, and extensions to the program Blender to handle level editing.
- **iPatch Pirates (2019)**
 - o iPatch Pirates is an online educational game intended to tackle issues surrounding cyber security. I joined the team through PlayWest in the final few months before the project shipped and was tasked with adding achievement and tutorial mechanics, as well as UI animations and general polish. The game launched to all UWE staff and students across PC/Android/WebGL with good feedback.
- **Alien Isolation Zombies (2016 to 2018)**
 - o To learn about the process of creating a game level before starting university I developed an Alien: Isolation map within Call of Duty: Black Ops 3. The development of the map taught me a lot from gameplay scripting, audio, player engagement, handling exploits, and even unexpected aspects such as community interaction and trailer production.

Many more projects can be found on my website, along with additional information about each of these.

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