**Critter Chronicles**

Tools: Microsoft Visual Studio 2017 & 2019, PS4 SDK, PS4 Dev kits, ORBIS Documentation, GitHub, Unity, Visual Studio Code, Trello, Photoshop, Blender, 3ds Max, Zbrush.

Techniques: C++, OpenGL, JSON, C#.

About the project: This is an openworld exploration game where the player must investigate a section of a planet that has once been explored and find any creatures within that vicinity and take photographs of them so they can take it back to the command ship and decide from there if they are able to survive on that planet.

This game project was a prototype designed to run on the PlayStation 4 development kits built using a custom game engine built from the ground up by the programmers.

My involvement: I was one of the programmers on this project. I worked on a couple of systems for our game engine and collaborated with the other team member on other systems. I mainly worked on the level editor, sound engine and game object importation.

Note: Due to the nature of the project the code is node available to share under the Academic Development Agreement which does not permit to share the code of the PS4 publicly.

**Volt Puzzle**

This is a puzzle game where the player is tasked with connecting circuit nodes from the left (Charge Nodes) to the circuit nodes on the right (Receiver Nodes) to match the result to the target value before the time runs out.

This game project was inspired by a particular section from the massively popular game GTA V online from their latest Cayo Perico update where the player is tasked with hacking a circuit box as part of their mission.

**Space Shooter**

About the project: This is a tech demo of a space shooter game where the player controls a ship and shoots down the asteroids that are falling from space. The demo also features controller and keyboard & mouse support for the ship controls.

My involvement: I was tasked with developing a tech demo of a game using C++ and DirectX 11.

**Pong**

About the project: This is a pong game where two players play against each other. The player on the left uses W and S keys to move up and down, and the player on the right uses Up and Down arrow keys to do the same. The first player to reach the score of 5 points wins the game.

My involvement: I was tasked with developing a pong game using C++ and the SFML Graphics library.

**Math exploration**

About the project: This project was exploring the use of mathematical functions to sketch art. I used computer-aided design software ­­‑ namely Desmos which is an advanced graphing calculator ­­­- to combine mathematical functions that make up different curved lines that will connect to form a figure of a camel.

**2D Vehicle**

About the project: This project was exploring plotting a vehicle in a spreadsheet using 2D matrices and applying transformation matrices to produce different effects on the vehicle.

My Involvement: I plotted the vehicle’s coordinates using Desmos (an advanced graphing calculator) and imported the coordinates into a spreadsheet and then converted the coordinates into matrices. After that, I applied transformation matrices to the vehicles matrices and used the obtained matrices to plot the vehicle on a graph in the spreadsheet.

**3D House**

About the project: This project was exploring plotting a house in excel using 3D matrices, projecting the house, and applying transformation matrices to produce different effects on the house and to view it from different angles.

My involvement: I worked out the 3d coordinates of the house (on paper) and added the coordinates to a spreadsheet and then converted the coordinates into matrices. After that, I added a perspective projection matrix and then applied transformation matrices to the house’s matrices.