

## SKILLS

**Tools and Languages** C, C++, OpenGL, WebGL, GLSL, Java, Python, Haskell, C# & .NET, JavaScript, Git,  $\text{\LaTeX}$ , Markdown, Regex

## GAME DEVELOPMENT EXPERIENCE

**Game Developer** **06 2021 — Ongoing**  
*Yaldi Games* *Remote, Part-time*

- Developing game system features including a weather manager (and weather effects)
- Developed using C++ in the Unreal Engine

**Game Developer** **05 2020 — 09 2021**  
*ToonTown: Corporate Clash* *Remote, Part-time*

- Developed game pad support, including movement control and UI interaction in Panda3D
- Implementing movement control involved extracting direction and magnitude from the thumb sticks and translating them into rotation for the camera based on its current angular position and rotation and movement speed for the player in relation to the angular position of the camera
- Took on and fixed bugs submitted by users from Jira

## OTHER TECHNICAL EXPERIENCE

**Software Developer/Scholarship Awardee** **07 2021 — 09 2021**  
*ThorLabs* *Remote, Full-time*

- Developed a replacement user settings management system in their software using C# and .NET
- Required the ability to take in and process previous settings file to persist previous user settings as well as quickly and easily add new settings in future updates
- I debugged and fixed a hard-to-reproduce bug in their hardware communications protocols, increasing reliability for a device communication.

**Computing Science Tutor** **06 2019 — 06 2019**  
*Firetech* *Edinburgh, Part-time*

- Taught Python to children aged 10-18 years
- Designed and delivered teaching sessions ranging in complexity from basic control flow to advanced object oriented programming

**Summer Intern** **05 2019 — 08 2019**  
*Robotical* *Edinburgh, Full-time*

- Developing addons for their educational robot
- Involved programming, communicating directly with the product designer and basic circuit design
- Learned and used OpenGL and Flask servers
- Helped the team organise and categorise potential fundraising options

## EDUCATION

**Artificial Intelligence and Computer Science (BSc Hons), The University of Edinburgh** **Ongoing**  
**Advanced Highers, (AAA, Maths, Physics, Computing Science)** **06 2018**

### Dissertation

*For my dissertation I developed a new volume rendering technique. This technique uses a neural network to represent the volume data. Then neural network is analytically integrated to calculate optical depth along a ray. I have also implemented a WebGL shader version of this which can be seen on my portfolio website.*

### Introductory Applied Machine Learning

*I learned about predictors and classifiers; and classes of each. Went into detail for the algorithms of Decision Trees, k-Means clustering, linear and logistic regression, principal component analysis and neural networks. I also learnt about optimisation and regularisation methods.*

### Computer Graphics

*I learned about the maths, algorithms and concepts behind raytracing. I then had to implement my own raytracer capable of reflection, refraction, texture mapping, rendering triangle-meshes (with uv coordinates and custom normals), and distributed rendering (thin-lens cameras and area lights). In order to achieve this I also had to implement a bounding volume hierarchy which allowed me to render over 40,000+ triangles in under a minute.*

## ACTIVITIES

**Game Development Special Interest Group Leader** **2020 — 2021**  
**2nd Year Representative for the Computing Society at Edinburgh University** **2019 — 2020**