

I am an undergraduate experienced mostly with gameplay programming, but I also have an interest in the programming of a complete engine and spend time reading about it. Games are my passion because, as well as being fun to make, they are a beautiful intertwining of my favourite parts of mathematics and programming. URaider is what I am most proud of, as it is extensive in the gameplay systems it provides.

TECHNICAL SKILLS

Languages: C++, C, C#, Java, Python, Haskell
Software/Tools: Unity, Git, Visual Studio, Maya
Game Maths: Linear Algebra: Vectors, Matrices, Quaternions

EDUCATION

University College London (UCL) **Bloomsbury, London**

BSc Computer Science

Sep 2017 – Jun 2020

- *Achieved a 1st overall for year one:*
 - *Principles of Programming: 76%*
 - *Applied Software Development: 77%*
 - *Engineering Challenges: 82%*
 - *Discrete Mathematics: 81%*
 - *Theory I: 61%*
 - *Theory II: 60%*
 - *Robotics Programming: 65%*
 - *Design and Professional Skills: 85%*

Banbridge Academy

5 A-Levels (Maths, Further Maths, Physics, Software Systems, Biology)

Banbridge, Northern Ireland

Sep 2015 – Jun 2017

- *A*A*AAB; Trophy for top A-Level results; Self-taught Further Maths*

St. Patrick's College

10 GCSEs including English and Maths

Banbridge, Northern Ireland

Sep 2010 – Jun 2015

- *1A*, 8A, 1B; Top GCSE results award; Top in Maths, IT, LLW and Statistics*

WORK EXPERIENCE

UCL Institute of Child Health

Bloomsbury, London

– *Programming Intern: Project Fizzyo*

Jun 2018 – Aug 2018

- Modified and debugged existing codebases for Unity games controlled by breathing apparatus
- Had to make mechanics engaging to encourage adherence to airway clearance
- Met with the patients at Great Ormond Street Children's Hospital and received feedback from them
- Worked alongside MSc students and had SCRUM stand-up meetings with Microsoft engineers

PERSONAL PROJECTS

2178: Resistance

Jan 2019

- Third person shooter/adventure style game prototype made in Unity with climbing
- Grapple and *swinging mechanics* created using simple harmonic motion
- *Enemy AI* patrols based on *waypoints* with ability to attack player
- Programmed UI in main menu

URaider – Tomb Raider Framework

Dec 2017 – Present

- Unity game framework that includes Tomb Raider game mechanics, such as *climbing, combat, swimming, crawling, pick-ups, inventory, doors/switches* and *enemy AI*
- Programmed a *finite state machine* using object-oriented programming techniques
- Implemented *accurate ledge grabbing* by adjusting jump velocity based on ledge location
- Flawlessly handles slopes above the character's slope limit with vector projection

ACADEMIC PROJECTS

Virtual Reality Cycling

Oct 2018 – Apr 2019

- *Team leader* on an Android Unity virtual reality project based around cycling in a customisable environment (track, weather, cycle distance/time)
- Allows users to see their statistics and automatically records them for progress tracking
- Created custom scene editors and inspectors to easily edit track splines
- Planning to connect to a cloud service to store details and maybe bring in multiplayer

NHS Video Labelling

Jan 2018 – Apr 2018

- Liaised directly with a client from the NHS to create an *Android app* that allows the user to record videos, tag them with human emotions, and export the data to train machine learning algorithms
- Was *team leader* and achieved a 1st overall in this module

Arduino Platformer

Nov 2017

- Python platforming game that takes input from buttons and an LDR on an Arduino
- Added an online leader board using Microsoft Azure

ACTIVITIES & HOBBIES

Hackathons:

UCL PixelJam Gaming (2017), Search for a Rising Star (2019)

School:

UCL Technology Society (2017 – Present), School Prefect (2016 – 2017), GCSE Python Tutor (2016)

Favourite Games:

Tomb Raider, Mass Effect, Assassin's Creed, Mirror's Edge, Hitman