

Niall Coleman-Clarke

I have been programming as a hobby since 2013 and my first paid job was in 2016. I like to explore a variety of different areas in computer science and solve challenges that come up in each project. I have many personal projects on [my github](#).

Work

Cartographer: Full Stack Developer | Contract

(May 2022 - Present)

For the front end, I assisted with the development of a cross-platform form engine for a geographical data collection platform with web and mobile client apps. The project involved work on multiple projects for web and mobile using TypeScript, React, using a variety of build tools and other libraries. The API server uses Scala with the cats library and the play web framework, as well as postgresql for any database interaction/migrations.

University of Goldsmiths: Software Engineer | Contract

(October 2023 - Present)

I developed a peer to peer streaming app which handled Motion Capture data, where there would be various producers of this data from different motion capture software. This would then be retrieved (over either a UDP connection, or directly through a DLL) by the app itself, which is written in electron. Next it would be sent over webRTC to the connected computers running the same app. Finally this data would be then sent from the app on the other end, to a data consumer, like the unity game engine.

For the unity side of the service, I developed some custom scripts to then take the motion capture data and animate a custom unity character.

University of Exeter: Map Embed Development | Contract

(July 2023 - October 2023)

I created an interactive map embed, which displayed publication data (containing location data) provided by the university, to then be shown as points on a map. On the project I went from doing requirements analysis, to building a quote from doing time estimation for each feature. One of the requirements was to create a universal solution for any dataset. So I created a configuration, as well as a templating language in the form of markdown with some context processing, so that they had control over how the publications were being shown. This configuration was all contained within a single file, with YAML as front matter, and then markdown being the publication rich text format.

Photobot: Python Django Development/Google Firebase Development | Contract

(April 2021 - March 2022)

I started work on an existing codebase as the sole developer, where I accomplished a number of tasks and worked across a few products. One of the tasks involved upgrading the Heroku stack from cedar-14 to heroku-18, where I also upgraded the minor Python version and its dependencies. I also worked on custom Python client code, which communicated with the server's API, which I was also working on. I also introduced many unit tests, to help ensure reliability and give confidence that

things work the way they should. Another one of the products I worked on was using the Firebase stack to host embeds, where they would be able to seamlessly fit into any page. These embeds would be able to receive custom styling/text content from the parent page to not disrupt the user experience/webpage interface.

Buzzshot: Python Django Developer | Contract

(July 2019 - August 2021)

I added a complete new feature to the app all the way from specification to deployment to end users, with coding in Python, HTML and CSS and including automated testing. I learnt about using Django in the industry; implementing services and interacting with APIs. I learnt how to contribute and work with an existing codebase and also adhere to the standards already in place.

I also developed a new app for Buzzshot from idea to launchable product, on my own where I got handed a brief and I had control over the rest (including UI - front page as well).

Peer Assisted Learning Program: Leader/Mentor | Contract

(September 2019 - June 2021)

Throughout 2nd and 3rd years at university, I worked in the peer assisted learning program, helping other students in computer science with their understanding, and assignments, and exam preparations. The learning was mutual - while I helped them, I also learnt about the many different approaches to solving a given problem.

UXBrighton: Front-end Web Developer | Contract

(August 2019 - September 2019)

Worked directly on the UXBrighton website using HTML, Javascript and CSS. When working, I had to keep in mind responsive web design principles and have learnt how to use them. I also helped getting the website to comply with the WCAG-A accessibility standards.

Buzzshot: Lua Script Developer | Contract

(August 2018 - August 2018)

I wrote Lua code to run on an embedded system housed in an SD Card to allow direct integration between DSLR Cameras and the Buzzshot system. I overcame the challenges of poor existing documentation and a small, niche community.

- I delivered the project on time, within the work period

Google Fonts: Software Developer in Test | Contract

(August 2017 - August 2017)

I worked over the summer for google fonts as a developer in test using Python to write unit tests, as well as other miscellaneous tests. I learnt how to use git in a professional environment on a project with multiple contributors.

- **Commits** that I made while working there

Volunteering

Codebar: Programming Coach

(October 2017 - January 2019)

I volunteered for a while at Codebar in Brighton, an organisation whose goal is to get more under-represented groups into tech roles. I think it's a fantastic cause which is why I did it. I found teaching there incredibly rewarding and also educational for me as I learned things when coaching.

- Taught Python, Javascript, HTML, CSS, Java

Howreadable: Experiment Development

(December 2018 - December 2019)

I helped design the second iteration of this experiment which aims to collect empirical evidence on whether certain coding constructs/standards are more readable than their alternatives. I helped in defining the experimental method, the UX of the participant facing website, and designing and writing the code snippets used as test cases.

Education

2018-2021 **Computer Science and Artificial Intelligence BSc (Hons);** University Of Sussex

Grade Received: 1st (79%)

2015-2018 **College Education;** Bartholomew's Tutorial College (Brighton)

A-Level results obtained:

A: Computer Science

A: Mathematics

B: Physics

Work Experience

Wish Studios

(August 2018 - August 2018)

I worked with the Unreal Engine where I made my own personal game mechanics. I had an insight into the games industry as well as how work might be for a games developer.

- Used the Unreal Engine's blueprints for GUI programming

Pragmatic WordPress Agency

(April 2017 - April 2017)

I had the opportunity to shadow many people working at the web agency. As a part of the work experience, I worked on my own personal portfolio website using wordpress with a little bit of PHP, HTML and CSS.

Technical Experience

Web Animation Template: Personal Project

I created and I'm continuously improving this template, which I have made for all of my web based projects. Inside of it I have a Vector class, Time Analysis (used for benchmarking/profiling certain methods), a complete parameter configuration class, which will let you create custom inputs for the animation and then hook them up to URL parameters. It is all written in Typescript, and has many type derivations/type-safe concepts.

Platformer Map Compression: Presentation

I gave a talk at a programming meetup (mainly about Javascript, but can be anything to do with programming) here in Brighton called **asyncjs**. The talk was on how the map compression for my platformer game works, including the algorithm and the file format. I covered areas as complex as bit manipulation to an audience with different levels of experience in computer science. When I was talking to people afterwards, everyone seemed to understand the content in the presentation.

Programming Languages

- **Lua:**

I started off programming with Lua, creating scripts in the Minecraft mod: Computercraft. I created more and more complex scripts until I eventually had an entire working **GUI** for interacting with the in-game computers. I later found out about the Love2D game engine for Lua where I created many projects including my **platformer game**.

- **Javascript:**

I moved on to NodeJS projects with the help of a tutor where I created many projects. I also do a lot of codegolfing using Javascript. I love doing HTML canvas animations, including: a **rainbow I made for celebrating pride**, **having fun with circles**, and a **cellular automata sandpile simulation**, **cellular automata particle system written using convolution**.

- **Python:**

I started learning Python for my GCSEs and also used it for my A-Levels. I have since done many projects with it, including a **Discord bot** which offers many miscellaneous commands. One of the commands is a **text to emoji text** translator which works like **this**. I have also done some **Project Euler** challenges and have made a **repository containing my solutions** to them.

- **Java:**

In my first year of university, we learnt Java. To better understand linear algebra (which I also learnt at that time), I created a **library** to do vector/matrix manipulations. I also challenged myself to create a **genetic algorithm for the game of life** in Java.

- **GLSL:**

I have experience with GLSL when using the Love2D game engine for Lua. One of my projects was to create a **trippy/hypnotic spiral** for fun and it turned out to be pretty cool - I figured out how to make spirals in a 2D plane. Another project where I used GLSL for shading was my Platformer game, where I created a **shader** to create scenes in the game like **this**.

- I also have learnt **HTML**, **CSS** through work and I'm very familiar with JQuery, bootstrap, react, SASS, and chakra UI.

Other Hobbies

Music

I listen to many types of music, however I mainly listen to drum and bass, chill, hip-hop, and dance.

Socialising

I love to go out with friends and also love talking with people in general.

Travel

Travelling is something that I have loved ever since I remember; enjoying the culture and also eating the local cuisine.