Harry O'Brien

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EDUCATION

University of Manchester — Manchester, UK
B.Sc. in Computer Science — Sep 2019 – Aug 2022 (current)
Integrated Engineering Foundation Year — Sep 2018 – Aug 2019

Gosforth Academy — Newcastle Upon Tyne, UK
3 A-Levels in Maths, Further Maths and Computer Science. A, B, B respectively — Sep 2016 – Aug 2018
11 GCSEs with an A* in English Language and Math — Sep 2014 – Aug 2016

EXPERIENCE

University of Manchester Hyperloop *(hyperloopmanchester.com)* — Manchester, UK
Lead Software Developer and Head of Electronics — June 2020 - Current

- As Head software and hardware developer for the University of Manchester Hyperloop program, I was tasked to design and lead the development of the entire digital system of the pod. This was a great opportunity to use my knowledge in embedded firmware development on a large-scale project and to build my skills in team leadership. We use C++ on a Teensy 4.0 microcontroller to interact with all hardware, and an ODROID-N2+ running ROS, computer-vision algorithms and a web-socket server for us to diagnose and control the pod remotely.

University of Manchester Unmanned Aerial Vehicle Society — Manchester, UK
Lead Software Developer — June 2020 - Current

- I have been appointed as the lead software developer for UAV Society. I have already implemented a wireless ad-hoc communications network using batman-adv and wrote a command and control program in C++ on custom built quad-copters to direct a swarm at a high level. I am now co-developing software to target and track other drones in the air using Y.O.L.O., Python, and stereo cameras. During these projects, I have gained more experience with writing computer vision software and writing code for distributed systems.

HACKATHONS

Graphene Hack — Nov 2019

- I participated in the first-ever Graphene Hackathon at the Graphene Engineering Innovation Centre as a team of six. As a team, using graphene ink and C++ on an Arduino, we produced a wirelessly-connected glove in 24 hours which senses gestures and touch commands using printed graphene tracks.

Google Hash Code — February 2020

- My team and I completed one problem with five different files as inputs. Although my team did not qualify for the final, we were able to achieve full points in the example round and have gained valuable experience to compete again this year coming.

PROJECTS

See full list of projects on hobrien.ddns.net

Mint Crispr — 2018 - Current
Flutter, Bluetooth LE, Embedded Devices, TDD

- As part of a research project, I am producing a novel low-cost diagnostics platform to diagnose childhood cancer in Malawi using CRISPR-Cas14.

Bare-Bones Raspberry Pi OS — 2018-2019
Raspberry Pi, C++, C, ARM Assembly

- Built a custom, bare bones OS for Raspberry Pi following several tutorials and information sources found online.

SKILLS AND INTERESTS

- **Programming:** Well versed in C, C++, Python, Java, Swift, Dart and PHP. Learning Verilog and ARM assembly.
- **Hardware:** Embedded devices development, robotics and micro air-vehicle development. 3D design and printing.
- **Additional:** I enjoy rock climbing, snowboarding, and continue to play on a rugby team having been captain in 2016/17. I am also a keen musician, regularly playing the piano, guitar, bass, and drums.