

# Harry Upton

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## Education

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- 2021 - Present    **Electronic Engineering (MEng)**  
University of Warwick  
*1st Year: 82.8%, 2nd Year: 86.5%*
- 2019 - 2021      **A Levels**  
Oaklands Catholic Sixth Form  
*Mathematics A\*, Further Mathematics A\*, Physics A\*, Chemistry A\**

## Relevant Modules

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### Analogue Electronic Design - 81 % (Grade 1)

- Multistage amplifier design using *Microcap-12* for circuit simulation.

### Computer Architecture and Systems - 97 % (Grade 1)

- Programmed a simple game on an STM32 in C.
- Directly manipulated registers to control the microcontroller and peripherals.
- Made extensive use of hardware timers and interrupts in an FSM to implement complex game logic.

### Microwave Engineering and RF Circuits - *Grade Pending*

- RF amplifier design in *AWR Microwave Office*.
- Transmission line theory, filters and matching in RF circuits.

### Sensors - 82 % (Grade 1)

- Designed a capacitance measurement device using *LTSpice* to simulate 555 timer circuits.
- Fundamentals of reliability theory.

### Signal Processing - *Grade Pending*

- FIR and filter design using *Matlab* and windowing methods.

## Additional Experience

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### Summer Intern - Plextek

July 2023 - September 2023

- Embedded development in C with STM32-based microcontrollers on a LoRa datalink to be integrated with a different product at the company.
- Experience with embedded Linux, including building custom kernel images from source and modifying the device tree to interface with custom hardware.
- Implemented signal processing code on embedded hardware with the FFT algorithm, matched filtering and blob detection.

### Control Systems Engineer - Warwick Racing

October 2022 - Present

- Developed custom multi-layer PCBs at all stages of the design process using *EasyEDA*. This involved component selection, schematic capture, PCB layout, routing, verification, and assembly to operate inside of a Formula Student Electric race car.
- Ensured all designs were compliant with FSUK rules and fulfilled specifications decided on with other members of the team. Liaised with members of a variety of sub-teams to ensure designs were well integrated and worked towards completing the goal of building a high-performance race car.
- Collaborated with other team members on a large code base using *Git* to handle version control.
- Microcontroller programming in C++, using FreeRTOS to ensure code was fast and reliable.

## Student Ambassador - Warwick School of Engineering

December 2022 - Present

- Working as a representative for the University while organising a variety of events such as open days and talks.
- Talking with prospective applicants about the engineering degree, my experiences and the university, and giving tours of the department.

## Technology Officer - Warwick Engineering Society

February 2022 - April 2023

- Set up and managed the technology (e.g. automatic ticketing systems and audio equipment) for any events. Closely collaborated with the other members of the exec team to ensure a positive experience for society members.
- Handled many admin tasks for the society and introduced new systems to improve the workflow for other members of the exec. For example, implemented a new custom email and mailing list system on the society's private server using an open source system - *Mautic*.
- Developed a REST API and *MySQL* database back-end using *NodeJS* to simplify ticketing and attendance logging for society-run events.

## Assembler - Hi-Technology Group Ltd.

July 2022 - September 2022

- Worked as part of an assembly team in an injection-moulding factory, communicating with my colleagues to ensure sufficient output was met and deadlines were reached.
- Inspecting products for defects and documenting how often each defect would occur, this required a meticulous attention to detail to recognise even the smallest nonconformity in a fast-paced work environment.
- Trained new staff and ensured all safety protocols were followed.

## Skills and Projects

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### 3rd Year Dissertation Project:

- Interfacing with a novel MEMS thermal conductivity sensor to measure  $CO_2$  concentration.
- PCB Design in *Altium Designer*
- Circuit Simulation in *LTSpice* to verify schematics and aid with component selection.

### Electronics Skills:

- PCB Design in *Altium Designer* and *EasyEDA*
- Circuit Simulation in *LTSpice*, *PSpice* and *Microcap-12*
- RF Amplifier Design in *AWR Microwave Office*
- AVR Microcontroller programming with C and Assembly. STM32 programming with C, *STM32Cube* and the *HAL*
- Experience with Logic Analysers, Oscilloscopes and VNAs

### Software Skills:

- C, C++, C#, Javascript, Python and Matlab
- GDB, Make, PlatformIO
- Experience with Linux, Apache, MySQL Server, NodeJS and CertBot.

## Awards and Scholarships

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- **UKESF Scholarship** - December 2022  
Sponsored by *Plextek* as part of the UK Electronics Skills Foundation Scholarship Scheme.
- **Merit Scholarship** - January 2023  
Awarded by the *University of Warwick School of Engineering* for outstanding academic performance.