Harry Upton

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Education

2021 - Present **Electronic Engineering (MEng)**
University of Warwick
1st Year: ***82.8%****, 2nd Year:* ***86.5%****, 3rd Year:* ***84.0%***

2019 - 2021 **A Levels**
Oaklands Catholic Sixth Form College
Mathematics ***A****, *Further Mathematics* ***A****, *Physics* ***A****, *Chemistry* ***A*****

Relevant Modules

Analogue Electronic Design - 81 %

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

Microwave Engineering and RF Circuits - 86 %

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

Signal Processing - 94 %

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

Fundamentals of Modern VLSI Design - 87 %

- Designed a synchronous 3-bit CMOS Gray Code counter in 65nm process.

Digital System Design - 85 %

- FPGA programming in Verilog, functional and timing verification with *Vivado* tools.
- Recreated the NES game *Bomberman* complete with VGA video output, music, and USB keyboard input.

Communication Systems - 78 %

- Analogue and digital modulation techniques. Optical communication. Error correcting codes and compression.

Additional Experience

Summer Intern - Plextek
July 2024 - September 2024

- Developed FMCW signal processing pipeline for use in a multistatic radar setup and tested using ADRV9361-Z7035 SDRs. A Kalman filter based frequency-time tracking algorithm was used to eliminate one of the receiver channels, simplying the receiver hardware without compromising performance.
- Created simulations in *Python* to experiment with using code-division multiplexing with pseudo-random sequences to perform transmitter identification in a multistatic radar system.

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.

Control Systems Engineer - Warwick Racing
October 2022 - Present

- Designed the VCU (Vehicle Control Unit) PCB that operated inside a Formula Student Electric race car. Took part in all phases of the development process including schematic capture, layout and testing with the specific goal of ensuring reliability performance and compliance with the rules, enabling the team to compete in all 4 dynamic events events and place 16th overall out of 56 FS entries.
- Embedded development using *C++*, *FreeRTOS* and *PlatformIO*.

Student Ambassador - Warwick School of Engineering
December 2022 - Present

- Working as a representative for the University while organising a variety 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
Februrary 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 platform.
- 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.
- Trained new staff and ensured all safety protocols were followed.

Skills and Projects

3rd Year Dissertation Project:

- Investigated the use of a novel MEMS thermal conductivity sensor to measure CO_2 concentration for indoor air quality monitoring.
- Calculated the expected response of the sensor analytically in *Matlab* and used this to aid with circuit design.
- Designed an interfacing circuit based off a constant current source and high resolution ADC.
- Performed circuit simulation in *LTSpice* to verify schematics and aid with component selection.
- PCB Design in *Altium Designer*.

Awards and Scholarships

- **Head of School Award (Year 3 MEng)** - July 2024
  Awarded by the *University of Warwick School of Engineering* for outstanding academic performance in Electronic Engineering.
- **Merit Scholarship** - January 2023
  Awarded by the *University of Warwick School of Engineering* for outstanding academic performance.
- **UKESF Scholarship** - December 2022
  Sponsored by *Plextek* as part of the UK Electronics Skills Foundation Scholarship Scheme.