Ishaan **Reni**

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Personal Profile

A hard-working and motivated third-year university student that is currently doing their degree in Electronic and Information Engineering. I am seeking an internship in the engineering industry to build upon a keen interest in the field. Passion for digital electronics, computer architecture and embedded programming.

Education

Electronic and Information Engineering (MEng), Imperial College London *2020 - 2024*

- **Relevant Modules:** Digital and Computer Architecture, Mathematics, Software Systems, Discrete Mathematics, Introduction to Machine Learning, Communication Networks, Operations Research, Embedded Systems, Digital Systems Design, Network and Web Security, Computer Vision

A-Levels and GCSEs, Haberdashers' Adams *2016 - 2020*

- **A-levels:** Computer Science(A*), Mathematics(A*), Physics(A).

Projects

Mars Rover *June 2022*

- Worked in a cohesive team to create a rover that could explore a small area and map obstacles it could see.
- An image processing pipeline was written in SystemVerilog to apply different kernel filters, such as Gaussian blur, onto the raw pixel data.
- The NIOS II Processor used some embedded C code to coordinate the object detection.

C-To-MIPS Compiler *March 2022*

- Programmed a working C-compiler that compiles from C to MIPS assembly.
- Used a FLEX/Bison combination for the lexer/parser.
- The produced abstract syntax tree (AST) was converted into MIPS I assembly using a hand-crafted code generation algorithm.

FPGA Pedometer *March 2022*

- Programmed a NIOS II Processor using C to interpret readings from the accelerometer on the FPGA to make a Pedometer.
- Pedometer was part of an IoT system that forwarded the pedometer data to a web server to be viewed by the user.

MIPS I ISA Compliant CPU *November 2021*

- Part of a group project that designed and implemented a synthesizable MIPS-compatible CPU using SystemVerilog.
- Built an assembler using Python that converted MIPS assembly code to machine code.
- A thorough testbench that can be used to test another group's CPU.

Dual-Core Floating Point CPU *June 2021*

- Designed and implemented a dual-core CPU as part of a group.
- Implemented a floating-point arithmetic logic unit as part of the CPU.

Experience

Software Engineer - Avionics Team, Karman Space Programme *October 2022 - Present*

- KSP (Karman Space Programme) aspires to be the first student-led team to reach space using a reusable rocket to reach the Karman line.
- Will be dealing with microcontrollers that interface with various sensors used by the rocket.

EE Departmental Representative, Imperial College London *July 2021 - Present*

- Act as an intermediary between the EE department and the students from the department.
- Responsibilities include attending/participating in committee meetings that range from university-level to department-level; coordinating with year representatives; dealing with academic and wellbeing issues.

Assembly Line Feeder/Worker, Makita Telford *July 2021 - September 2021*

- Gained experience working in a high-pressure and time-critical environment.
- Was relied upon heavily to keep the assembly line running and abundant with the correct components that corresponded to the model that was being constructed.
- Noticed a time inefficiency with the ordering system and suggested an alternative method to save time and energy for other line feeders.
- Worked with senior colleagues to do trial runs and tests to put the new method into place.

Youth Club Helper, St. John's Church Muxton *November 2018 - May 2019*

- Learnt how to interact with various age groups during these sessions as I met lots of parents and children.
- Identified the wants and needs of others to create a nice working environment.

Intern, Smartwater Technology LTD *June 2018 - July 2018*

- During the two weeks, I was placed into different departments, within the company to understand how each department uses Science and Engineering.

Skills

- Significant experience in high-level (Python), low-level (C++) and hardware description (System Verilog) languages have given me the necessary skills to pick up a new language quickly.
- Knowledge and experience in implementing advanced data structures and efficient algorithms.
- Experience in dealing with CAD software and can adapt to new software quickly.
- I use an Arch-based distribution as a daily driver.
- Experience in Git as a command line tool.

Hobbies/Interests

- Boulder, play badminton and fence on a regular basis to keep myself in shape.

References available upon request.