

Josiah Mendes

Email: josiahmendes@icloud.com | [LinkedIn](#)

+44 7392 948657

[GitHub](#)

Electronics & Information Engineering

I am a globally-minded computer engineering student interested specifically in *designing processors & custom hardware solutions for high performance/low-power computation*. I look forward to having the opportunity to both contribute meaningfully to different projects and the opportunity to develop both technical and soft skills, working alongside experts from a wide range of disciplines and academic backgrounds.

Work Experience

Arm Intern CPU Engineer

July 2021 - Sept 2021

- Used **SystemVerilog** and **UVM** in conjunction with **Python** to implement the testing and modelling behaviour for a UVM register layer model that was used to verify register transactions within blocks of an R-Class CPU.
- Worked with two senior engineers to find multiple bugs through both implicit and explicit register layer prediction, and presented **design verification** results to the wider team at the end of the internship.

Education

Imperial College London

Sep 2019 - Jun 2023

3rd Year MEng Electronics & Information Engineering (Predicted 2:1 / First Class)

Relevant Courses - Advanced Computer Architecture, Custom Computing, Instruction Set Architectures & Compilers, Information Processing, Embedded Systems, Machine Learning, Digital Electronics.

Technical Skills - **Proficient:** SystemVerilog, C++. **Comfortable:** Git, Linux, Python, Intel Quartus Prime, Swift.

Extracurricular - Course Academic Representative, Ultimate Frisbee, Mandarin (Level 5)

Yew Chung International School of Qingdao, China

Sep 2013 - Jun 2019

International Baccalaureate Diploma Programme (40/45)

Higher Levels: Computer Science (6), Physics (6), Mathematics (5).

Standard Levels: Mandarin (7), Economics (7), English Language & Literature (6).

Extra: Extended Essay on **eGPU Performance Acceleration** (A), Theory of Knowledge (B).

Cambridge International GCSEs - 5 A*s, 3As and a B, including an A* in English and A in Maths. May 2017

Achievements:

Class Valedictorian (2019),

School All Round Excellence Award (2016),

9 Subject Awards for Academic Excellence (2014-2019),

Football, Basketball, Volleyball Team Captain (2015-2019)

Projects & Experience

Function Accelerator Digital Systems Design Coursework

Jan 2022 - Mar 2022

- Performed a step by step acceleration of the computation of a mathematical function summing cosines, from a pure software implementation running in **C** on a soft Nios II core, to the design of a dedicated hardware compute module.
- Examined the impact of cache sizes and different cosine function implementations.

MARS Rover 2nd Year Design Project

May 2021 - Jun 2021

- Collaborated remotely with 5 students to implement an autonomous rover with full remote control and mapping.
- Responsible for *real-time* object recognition and detection using a **FPGA Image Processing** pipeline using HSV colour space conversion and colour detection in **SystemVerilog**, and designed the comms stack from the FPGA to the ESP32.

MIPS32-T501 Instruction Set Architectures Coursework

Nov 2020 - Dec 2020

- Led and managed the implementation of a CPU that carried out a subset of MIPS32 instructions in **SystemVerilog**.
- Individually implemented a complete assembler & improved clock speed by 825% without sacrificing area/power.

Intelligently Built Microprocessors 1st Year Design Project

May 2020 - Jun 2020

- Worked in a team of 3 to design a 16-bit Instruction Set and Processor using **Quartus Prime & Verilog** optimised for efficient recursion, random number generation and traversing linked lists with a hardware stack.
- Optimised CPU design by making adjustments after repeated testing, enabling a 62% increase in clock speed.

YCIS Qingdao Student Council President

Oct 2016 - Jun 2019

- Used **Dart, Flutter & Firebase** to build an iOS/Android App to manage finances and act as a point-of-sale system for Student Council, improving shop stock management and increasing profits by 74%.
- Organised and managed events such as movie screenings and water balloon fights as part of a student mental wellbeing initiative, leading 25% more students to have a "very good" impression of the organisation.