*Personal Statement*

I am a 2nd year Electronic Information Engineer at Imperial College London, with technical as well as analytical skills in hardware and software, who is interested in the field of System Design. I possess a plethora of teamworking experience, as well as tested communication skills, and adaptability under a variety of environments. I am excited to learn a new assortment of skills through your internship scheme.

*Education*

**BEng Electrical Engineering and Computer Science (Penultimate Year)** Oct 2020 – Present

Imperial College London - Currently Attending Year 2

**1st Year Avg. Second Class (Lower Division)**

**2nd Year Avg. First Class**

**A-Levels (& AS-Level)** Sep 2018 –

Jul 2020

Bishop Of Winchester Academy

**Maths (A\*) Physics (A) Computer Science (A)**

*Competitions*

**University of Bath Science & Engineering Summer School Jun 2019**

* Tasked to comanage group of 3, research and construct a water clock which could function over 12 hours
  + Final product accurate with 5-minute variance

**Cyber Centurion Competition 12th - 16th Aug 2019**

Bournemouth University

* Participated in a national group based cyber security challenge up to semi-finals with no prior experience in the field nor given the prerequisite contents

*Projects*

**Developed MIPS CPU**

* Implemented a functional single-cycle MIPS I CPU with a Vonn Neumann Architecture type in a collaborative project using Verilog
* Experience as team captain
  + Organised meetings to prevent stagnancy in work, setting deadlines and distributing workload to group-members’ strong suits to utilise every member, preventing bottlenecking
* Experience in Verilog
  + Directly applying Verilog after learning the characteristics of the language helped me gain immediate experience
* Break down large project into smaller digestible subtasks
  + Broke down ALU, CU into individual subcomponents within to abstract problem to make easier to implement
* Worked with Avalon interface
  + Working under set boundaries helped me to understand constrains and to improve the functionality of the CPU to the maximum allowed capability
* Optimised testing methods
  + Using various debugging analysis to locate bugs when testing (through instruments such as GTKWave as well as robust self-written test benches)
  + Synthesised model on FPGA to determine special and timing efficiency
  + Made generalised test benches so entire instruction set can be quickly tested using bash scripts
* Experience in synthesising code on FPGA for forensics
  + Using Quartus, synthesised CPU on FPGA to determine special and timing efficiency

**Circuit Analyser Using C++**

* Designated to role of team captain
  + Ensured the work put remained consistent through utilising fundamental management properties (planning; organising; leading as well as controlling)
* Utilising foreign topics to improve overall quality of final product
  + This is a case where yet again topics from other fields of study were utilised to advance the overall projects functionality, making the overall circuit analyser more robust
* Confident in utilising theorems learnt in unrelated in projects
  + From this, the signal gain as well was phase at each node would be calculated. This was achieved through modelling DC as well as AC properties of the graph through their matricides format.

**Top-Down Shooter Using Python**

* Developed OOP understanding as well as developed a physics engine for the game with no prior training/insight
* Constructed a game engine
  + Engine
    - allowed object placement; map creation through both text file decoding; allowed motion as well as projectile fire
  + Objects
    - Static objects (e.g., walls); enemy mobs; interactable objects and playable characters were all supported
* Cross joining multiple disciplines to improve overall product
  + Cross joining classical mechanics in this project allowed for more immersive gaming experience as well as more detailed product

**Motorised Solar Tracker using an Arduino and C++**

* Using a pan and tilt module as well as an Arduino, constructed a solar tracker
  + The module would calculate the zenith and azulith angle, relative to the specified latitude and longitude. This is a case where through incorporating hobbies studies, a functional model was designed which conducted intermediary tracking system
* Using this information, the module would rotate the motors within the module accordingly to always face sunlight

**Developed a MU0-ARM CPU**

* Using a open source drag-and-drop application, implemented a fully functional MU0-ARM hybrid CPU
* Developed an understanding of the MU0 architecture as well as the instruction set
* Learnt risk management
  + Through planning projects and assessing challenges that will arise, project delays were avoided since project challenges were acknowledged early, giving me time to prepare accordingly
  + Useful asset in complicated group-based projects since early handling prevents future bottlenecking

*Skills*

* C++, System Verilog, C, Python, ARM Assembly, MIPS Assembly

*References available upon request*