

## -----Education-----

**Imperial College London****September 2017- June 2021**

Electronics and Information Engineering 2:1

Relevant modules: Simulation and Modelling; Machine Learning; Artificial Intelligence; Mathematics for Signals and Systems; Deep Learning; Object Oriented Programming; High-Level (functional) Programming; Software Engineering; Computer Architecture 1 and 2; Data Structures and Algorithms; Algorithms and Complexity; Databases; Computer Networks and Distributed Systems; Language Processors; Mathematics 1 and 2; Computer Vision.

**Dr Challoners Grammar school****September 2010-2017**

- A Levels: Mathematics, Further Mathematics, Physics Electronics (A\*AAA) 2017
- Regional runner up in Young Enterprise 2017
- A (highest attainable mark) Additional Maths (OCR Free Standing Qualification) 2015
- Junior Maths Challenge multiple silver awards

## -----Work Experience/Relevant Projects-----

**Python Projects****October 2019 – Present**

- Developed a library from scratch (excluding NumPy) for implementation and training of neural networks (Graded 100%)
- Monte Carlo Simulation (personal project) and Analysis (graded 60%) of CPU Cores' Interaction with Ticket Spinlocks
- Deep Learning Paper on Network Training, Common CNN architectures, RNN, Autoencoders, VAE-GANS and RL (Graded > 70%)
- Image Classification on MNSIST Fashion using PyTorch, test set accuracy 95.95% (better than 5th place on Kaggle) (Graded 95%)
- Decision Tree Classification of phone location using signal strength received from 8 Wi-Fi routers around a house (Graded 69%)
- Image Filtering: Created multiple filter kernels using NumPy and Convolved on Images using SciPy and TensorFlow (Graded 91%)

**C++ projects****October 2017 – Present**

- MIPS Simulator: A C++ programme would emulate a CPU's memory and register file when given MIPS-1 big-endian binaries (Graded 77%)
- C98 to MIPS compiler including lexer, parser and code generator. Also using the same skeleton to create a c98 to python translator (Graded 66%)
- Smaller projects include mastermind solver, production and evaluation of complex binary trees, "2048" game and sudoku checker

**LLVM Undergraduate Research Opportunity****August 2020 – October 2020**

- Implementing resource sharing between different statically and dynamically scheduled components by using LLVM to manipulate source IR to comply with HLS and Dynamic scheduling tools

**IBM workshop (graded 71%)****July 2019**

- 3 days of lectures on IT architecture and security given from multiple IBM specialists
- 2-day assessment on IT architecture including deliverables such as: System Context, Architectural overview and Component model Diagram, Architectural Decisions and a final presentation to IBM seniors.
- Deciphered a long brief into concise functional and non-functional requirements
- Furthered teamwork and leadership skills working in a group of 9, sharing management responsibilities throughout tasks

**SQL databases Coursework (graded 68%)****February 2019**

- Formulated a series of SQL queries to solve a variety of problems

**FPGA Real Time Image Processing end of first year project (C and python) (graded 72%)****March 2018 – June 2018**

- Developed a deep understanding of optimisations specific to FPGAs and general computer architecture, such as arbitrary precision types, unrolling loops and pipelining
- Developed time and resource management skills including the creation and application of Gantt and Activity Network diagrams
- Took the lead role writing an 8000-word technical report

## -----Skills and Interests-----

Advanced mathematics receiving 100% on multiple A-Level maths and further maths modules, linear Algebra. C++, Python (including but not limited to pytorch, keras, tensorflow), SQL, F#, MATLAB, Prolog and Java. Experience with all 3 major operating systems and developer tools such as Visual Studio and Git.

I am a competitive person and enjoy a variety of team sports and games including football, tennis and chess. In high school, a group and I set up 2 five aside teams that competed weekly. I am fascinated by motorsport and enjoy when possible endurance and F1 Grand Prix races. I love solving problems and was a frequent winner in my high school engineering society.

References Available on Request