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Work Experience

First Derivative Technologies: Data Scientist on Capital Markets Graduate Programme **October 2021 – Present**
- Completed Training Modules including but not limited to: Python, SQL, Unix and Multiple Finance Modules
- Founded a deep understanding of the vector oriented programming language Q, and corresponding KBD+ Database

Imperial College London: 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 "Dynmatic" scheduling tools
- Developed a deeper understanding of Intermediate Representation and the respective optimisations

Relevant Projects

Deep Learning Research Paper, Python (Graded > 70%) **March 2021**
- Implemented and analysed the following: Common CNN architectures, RNNs, Autoencoders, VAE-GANS and RL networks

Neural Network Library, Python (Graded 100%) **December 2020**
- Developed a library from scratch (excluding NumPy) for implementation and training of dense neural networks

Image Classification using a Convolutional Neural Network, Python **November 2020**
- Image Classification on MNSIST Fashion using PyTorch, test set accuracy 95.95% (better than 5th place on Kaggle)

Monte Carlo Simulation of CPU Cores' Interaction with Ticket Spinlocks **November 2020**
- Monte Carlo Simulation (personal project) and Mathematical Analysis (graded 60%) investigating the effect of varying the number of CPU Cores' on both; time taken to execute a given number of jobs and average number of cores in use

MIPS Simulator, C++ (Graded 77%) **November 2018**
- Emulation of a CPU's memory and register file when given MIPS-1 big-endian binaries
- Wrote a Test Bench with over 200 tests of Mips assembly

C98 to Mips Compiler, C++ (Graded 66%) **June – July 2019**
- In a group of 2, we developed a lexer, parser and code generator to compile C98 into Mips Assembly
- Using the same skeleton, we constructed a C98 to python translator
- Created a bash script to compare the output of executables produced from compiling C98 files using both GCC and our Compiler

Proof of Concept MySQL Database host on GCP **November 2020**
- As part of a 24-hour hackathon I host a selection of small relations on Google Cloud Platform to display our chosen architecture

IBM workshop (graded 71%) **July 2019**
- 3 days of lectures 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

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
- Matured 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

Education

Imperial College London; Electronics and Information Engineering 2:1 **October 2017- June 2021**

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

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 take pleasure in a variety of team sports and games including football, tennis and chess. In high school, I set up 2 five aside teams that competed weekly. I am fascinated by motorsport and attend/watch endurance and F1 Grand Prix races. I highly and enjoy maths, and especially enjoy its involvement with sport. I'm a highly competitive person and love solving problems, subsequently I was a frequent winner in my high school engineering society.