Thomas McIver

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Github:
github.com/tam663/example-work

Education

University Of Cambridge
BA, Natural Sciences, Department of Physics 2016-19
MSci, Department of Physics 2020-21
St Malachys College, Belfast 2009-16
A Levels: 4A*s in Maths, Physics, Chemistry, Biology.
GCSEs: 8A*s (including the Sciences and Further Maths), 2As
Academic Awards: Institute of Physics A level prize, CCEA award for 1st place at A level physics in Northern Ireland.

Skills

Strong quantitative reasoning:

- Strong interest and performance in maths throughout education, including receiving prizes in quantitative subjects at A level and achieving first class results in the most difficult quantitative papers in my degree such as in a General Relativity paper in my third year.
- Implemented a number of computational algorithms both as a part of my degree and in my free time, including a wide use of Monte Carlo, Runge-Kutta and Fast Fourier transform techniques for example.

Coding ability:

- Fluent in Python and C++, having implemented a range of physical models in these languages as an undergraduate- see github for example work.
- Recently implemented a Monte Carlo Markov Chain model of the Ising Ferromagnetism model in C++. The program was optimised using vector measuring routines, and parallelisation using the future template class, and run time speed ups of over 95% compared to the initial implementation without any loss of complexity of the simulated magnetic behaviour were achieved.
- Self-taught a number of Python modules including TensorFlow (Keras), Scikit-learn, Django, Pandas, and Numpy. I recently used these modules to implement a Machine Learning project to predict Premier League footballers' performance. The resulting models were trained using recurrent neural network architectures, and were able to achieve a validation accuracy of 98% for some categorical variables, and a mae score of only a few percent for some regression models.

Financially aware:

- Have taken the MIT OpenCourseWare lecture series 'Topics in Mathematics with Applications in Finance,' which has widened my awareness of the mathematics using in modelling and in particular to the applications of the Black-Scholes model.

Team-player:

- Represented my materials science year group as the class representative. This role involved liaising with senior teaching staff and communicating feedback from the year group to the faculty.
- Was the Publicity Manager for a major student music society, responsible for organising publicity campaigns for the termly concert and recital series, which are attended by hundreds of people each term.

Additional Interests

Outside of my academic pursuits I have a passion for music, and I have achieved grade 8 in two instruments, and grade 6 in two others. I am also a choral scholar, a semiprofessional position, and I have performed on multiple international tours with my college choir. I also enjoy conducting, and have lead my college orchestra on multiple occasions including a performance of Brahms' Hungarian Dances. Aside from music, I am politically engaged, and particularly enjoy reading political philosophy from Plato to Popper to Piketty.