JOSEPH WINTERBURN

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Education

University of Cambridge | MSci Natural Sciences (Astrophysics)

2017 - Present

I achieved a 2.i in my undergraduate finals. I am currently studying for an integrated masters, graduating in June 2021.

Uppingham School | Academic Scholarship

2015 - 2017

Further Mathematics A Level: A*
Mathematics A Level: A*
Physics Pre-U: D1
Chemistry Pre-U: D1
DELF B2
French AS Level: A

Experience

John Locke Institute | Faculty

July 2020 - August 2020

I developed an online system to manage the Institute's global essay competition - receiving approximately 2800 entries - ensuring and enforcing consistency between 27 graders. My system reduced costs for the company, and increased consistency, reliability, and integrity of their essay marking.

I also taught mathematics as part of the faculty for their summer school, with a particular focus on microeconomics and optimisation techniques, for example Variational Calculus, specialising in Lagrange Multipliers to optimise constrained multivariate functions.

In order to build a database of information about schools and their contacts, valuable to the Institute, I produced a web scraping script which collated and stored the information in a desirable format, reducing the company's monetary and time expenditure.

I also developed a system to manage the two-way feedback between students and faculty as part of the Institute's evaluation after their summer school.

Summer Research Project | Cambridge High Energy Physics

August 2019 - September 2020

I worked with a researcher in the HEP group at Cambridge University on a project to determine the maximum possible resolution of a muon tomography imaging system. The project included building a C++ application, linked with the GEANT4 software package, to run Monte-Carlo simulations of particle scattering. It also included using Gawk, bash and Python scripts to transfer and analyse the data produced, and to distribute and run code using HTcondor. I came across software and areas of programming that I hadn't encountered before, and had to teach myself how to use them effectively to achieve the goal of the project. I had to work mostly independently to postulate ideas and explore their possibilities, both computationally and mathematically, helping to prove a novel stochastic mathematical result.

Oxbridge Academic Programs | Program Assistant

July 2019 - August 2020

This was an incredibly varied position - my main role was to support whoever I needed on the faculty to facilitate the program, a task to which I applied a lot of the technical skills I had developed in order to streamline the organisational aspect and drastically reduce the time complexity of many tasks. I was also responsible for the residential wellbeing of students living on my staircase, with whom I developed a great relationship. I also had to interact with the parents of students on the program, some of which were high profile.

Skills

Python | Julia | HTML | CSS | JS | React.js | Next.js | Bash/Zsh | Java | PHP | Swift

Interests

Music
Astronomy
UI Design
Data Science
Machine Learning
Philosophy
Economics - particularly microeconomics