Tobias Long

66 Panama Circle, Derby, DE24 1AE
longtobias2@gmail.com ● 07884 932 612

EDUCATION

MSc Mathematical Medicine and Biology – University of Nottingham 2018-2019

- Year Average: **71%** (inc. Applied Nonlinear Dynamics, Practical Biomedical Modelling, Computational and Systems Biology, Topics in Biomedical Mathematics).
- Dissertation modelling the N-degron biochemical pathway in plants.

BSc (Hons) Physics with Theoretical Physics – University of Nottingham 2015-2018

- 3rd Year Average: **80%** (inc. Scientific Computing, Quantum Dynamics).
- 2nd Year Average: **86%** (inc. Electromagnetism, Dynamics, Symmetry and Action).
- 1st Year Average: **86%** (inc. Physical Computing, Experimental Physics).

Boston Grammar School 2008-2015

- A2 Level: Physics (**A***), Mathematics (**A***), Further Mathematics (**A**).
- AS Level: Chemistry (**A**).
- GCSE: 7 A*s, 3 As, 1 B, OCR National ICT at Distinction.

RESEARCH EXPERIENCE

PhD Researcher - University of Nottingham Sep 2020-Aug 2022

- PhD project working on Reduced Order Modelling of Distributed Electric Propulsion aircraft propeller layouts.
- Creating, running and analysing CFD calculations of propellers in OpenFOAM.

Quantitative Biology PhD Programme – University of Manchester Sep 2019-April 2020

- Rotation year of programme working within a developmental biology lab joint with an experimental condensed matter physics group.
- Project designing a sensitive thermocouple device to investigate the heat production from single frog embryos.
- Designing an electronic device, experimental set-up and measurements.

Condensed Matter Theory Group – University of Nottingham July-Aug 2018

- Summer internship working within a research group and developing neural networks in Python to learn statistical data generated by the Ising model.
- Applying machine learning algorithms in the form of deep neural networks using PyTorch.
- Data processing using Python, NumPy and Pandas.

Sir Peter Mansfield Imaging Centre – University of Nottingham July-Sept 2017

- Summer internship working on SAR heating from MRI, involving MATLAB modelling.
- Applying my knowledge of physics effectively to understand and solve unfamiliar problems.

COMPUTING EXPERIENCE

- Python knowledge from self-study, including solving physical problems with help from libraries such as *matplotlib*, *scipy* and *numpy*.
- MATLAB used extensively to solve physical problems during degree.
- Basic knowledge of Linux systems.
- Experience with Microsoft Office suite (Word, PowerPoint, Excel).
- Practical skills with computer hardware through building computers.

COMMUNICATION AND OUTREACH EXPERIENCE

First-year Physics Mentor – University of Nottingham 2017 - 2018

- I was a mentor responsible for the well-being of a group of five first-year physics students to help them settle into university.

Wonder 2017 - University of Nottingham June 2017

- Supervised a stall, with a fellow student, on magnetism and superconductivity at the "Wonder" public outreach event organised by the University.

Helpdesk - Nottingham Astronomical Society 2016 - 2019

- Regularly attend NAS meetings where I run the help desk and answer any questions visitors and members of the Society may have.

Maths Tutor - Boston Grammar School 2014 - 2015

- Provided tutoring for GCSE students during sixth form.

OTHER EXPERIENCE

- Self-enrolled on an online course "Introduction to Astronomy" by Duke University during AS Levels. I passed this with Distinction (98%).
- Voluntary work at British Heart Foundation shop over summer holiday - this taught me cooperative skills and how to form relationships between both co-workers and customers.
- Co-authored an article for the BAA website; "Jupiter and the amateur astronomer".

INTERESTS

- In my spare time, I like to keep a habit of learning. At the moment I am learning German and following a course in beginner web development.
- I am a member of the Institute of Physics as Physics remains a strong interest of mine.
- I enjoy playing tennis, running, listening to music and reading in my down time.

References available upon request.