

Ella Townson

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Personal Profile

A highly motivated, open minded and hardworking individual who is a consistent high achiever with a love for problem solving and taking on intellectual challenges.

Currently, a student at the University of Bristol, studying for an integrated masters (MSci) in Physics with International Experience. This includes a recently completed year abroad at the University of Copenhagen, including modules with the Department of Computer Science (DIKU).

Technical knowledge in Python, C ++, MATLAB and Java with excellent problem-solving skills and the ability to understand complex problems and create high quality, efficient and adaptable solutions. Enjoy working as part of a team to create and collaborate on innovative solutions.

Technical Skills

- **Python:** High technical skill level in Python, completed several complex projects. At University I achieved exceptional results in the modules: Introductory Scientific Computing (80), Maths with Numerical Modelling for Physics (84), Intermediate Computational Physics (95). Furthermore, I completed master courses at the University of Copenhagen in Computational Astrophysics and Introduction to Data Science. Experience with pandas, scikit-learn, NumPy, Matplotlib, Seaborn.
 - **C++:** Completed a Masters *level Applied Programming (APP)* course where I became well versed with C++ and gained foundational knowledge of Java.
 - **Data Science:** Achieved the top grade (12) in an *Introduction to Data Science* module with the Copenhagen University computer science department which involved applying principles of Bayesian statistics to classify data and exercising machine learning techniques to visualize and evaluate large data sets.
 - **MATLAB**
 - **Computational and Data Processing skills:** Completed two yearlong Practical Physics modules, from which I developed research, experimental design, and data analysis skills. Collaborative work included completing the projects in a partnership and presenting in lab conferences to develop my communication and interpersonal abilities.
 - **Report Writing (inc LaTeX):** The opportunity to produce both technical coding reports and practical experimental reports, both as an individual and part of a team, allowing me to develop advanced technical writing skills with the ability to communicate clearly and effectively.
 - **Microsoft Office Suite**
 - **Data Modelling and Simulation:** Included many opportunities to develop Data Modelling and Computational Skills, most notably assisting a PhD student at the CAMEA instrument at the Paul Scherrer Institute.
 - **Cross Disciplinary Studies:** Experienced in applying Physical Laws and phenomena to Biological Principles. Participated in two Biological Science modules at the University of Copenhagen: Introduction to Biophysics and Bionetworks. I have also worked closely with Nanoscience and Chemistry students, who allowed me to see problems from an external perspective.
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Work Experience

June 2023 **Internship, Paul Scherrer Institute**

Assisted a PhD students research into the Magnetic Short-Range order of the highly frustrated system, MnWO₄. As part of the course in Neutron Scattering at the University of Copenhagen, I spent a week working in a team of Masters students. Tasked with developing a significant understanding of the CAMEA instrument (a Multiplexing Spectrometer) and applying our knowledge of neutron scattering. Additionally, researched the structural magnetic properties of the crystals to produce informative plots, including successfully mapping the diffusive inelastic properties of the MnWO₄ crystal.

July 2018 –
Sept 2018

Intern, Handelsbanken

Completed a graduate-level internship at Handelsbanken in Shrewsbury over an 8-week duration learning about the localized banking the company undertakes, whilst completing a program being trained to complete day-to-day tasks in the bank. Given the responsibility to manage individual tasks, whilst also having the opportunity to spend time with each department within the bank, learning the responsibility of each and understanding the inter-departmental dynamics. It was a great experience where I was able to develop many skills, particularly customer service, teamwork and decision making.

Education

Sep 2020-June 2024 **MSci Physics with International Experience, University of Bristol**

Predicted 1st class degree.

Sep 2022-June 2023 **Year in international Experience, University of Copenhagen**

Awarded a competitive place on the Erasmus exchange program to study for the bachelor's year of my degree at the University of Copenhagen. I had the opportunity to study modules across several departments, including the department of Biology and Computer Science, where I had the opportunity to work with and learn from students of different disciplines. I was given the unique opportunity to take part in challenging Masters Level classes, whilst experiencing a new interactive style of teaching involving group work, presentations, and oral final examinations. Whilst studying I was given the opportunity to conduct practical experiments within the University, as well as at the MAX IV laboratory in Sweden, and the Paul Scherrer Institute in Switzerland.

Sep 2018 – June 2020 **A levels, Wrekin College** (Mathematics - **A***, Physics - **A***, Chemistry - **A***)

Sep 2018 – June 2019 **AS levels, Wrekin College** (Art and Design – **A**)

Sep 2016 – June 2018 **GCSEs, Wrekin College** (**Grade 9** – Physics, Chemistry, Biology, Mathematics, Art, Geography, English Language, **Grade 8** – English Literature, **A*** - French, **A** – History)

Extra Curriculum Activities

Throughout my school years I competed at regional and national level swimming events, and I continue to enjoy open water training and occasionally complete. This taught me self-discipline, determination, and time management as I balanced a rigorous 15 hour a week training program with my school studies.

I thoroughly enjoy the opportunity to travel and meet people from diverse backgrounds and understand their views and cultures. As such, I reveled the fabulous opportunities offered by an international summer school exchange in 2018 to Geelong Grammar School in Melbourne and a year abroad at the University of Copenhagen. Both presented personal challenges as I had to establish new friendships and adapt to local ways, but it allowed me to develop as a well-rounded open individual.

I am passionate about art and, for relaxation, love to paint, draw and visit galleries.