

Thomas Walker

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Education

Imperial College London

Sept 2021 – Present

BSc – Mathematics with Statistics, Predicted First Class Honors (85% achieved in First Year)

Reading School

Sept 2019 – July 2021

A Levels – Physics (A*), Mathematics (A*), Further Mathematics (A*), Extended Project Qualification (A*)

University Technical College (UTC) Reading – World Class Schools Quality Mark

Sept 2017 – July 2019

10 GCSEs and 2 BTECs

Experience

Data Consultant Intern – BAE Digital Intelligence

June 2022 – Sept 2022

Investigation project operations and developing strategies to improve resource utilization. Tasks involved understanding database infrastructure (SQL, Java), developing a data dashboard in Python (Dash, Selenium), and working with AWS.

Mathematics Tutor – My Tutor

October 2021 – July 2022

Planning and delivering online lessons on a weekly basis, as well as conducting reports on a student's progress to deliver back to their parents and teachers.

Lifeguard – David Lloyd

Sept 2019 – May 2022

Responsible for the health and safety of pool users. I had to observe various activities in the pool and aid where necessary. Furthermore, I had to complemented monthly retraining to maintain my qualifications.

Developer - Imperial Wiki Society

Dec 2021 – Present

Developing an online repository of module summary notes and worked solutions to problems. Promoting collaboration and extracurricular opportunities within the department through the platform. Collaborating with members from my own department and other departments to create an engaging online platform to host supplementary material for a variety of undergraduate modules taught at the university.

Academic Work

Generalization of Deep Neural Networks – Imperial College London

Oct 2022 – Dec 2022

Completed as part of an Undergraduate Research Opportunity (UROP). I investigated the current literature surrounding this topic and tried to reproduce many of the results for shallow neural networks. I then looked at how the different ideas in the literature could be connected and how this motivates future work in the field.

Jordan Algebras – Imperial College London

June 2023

A group project completed as part of my undergraduate studies, in which I investigated Jordan algebras. They are a relatively obscure structure in pure mathematics whose theory has important applications in number theory and quantum mechanics. As a group we had to modernize the old and disparate literature on the subject to create a self-contained introduction to the topic.

AI Safety Fundamentals – Effective Altruism Society

Oct 2022 – Dec 2022

Went through a curriculum of research regarding artificial intelligence (AI) safety, looking at techniques for interpreting AI models and the potential consequence of super intelligent AI systems. Finished the eight-week curriculum by writing an article on Chain of Thought Imitation Learning.

Aligning Pseudo-Random Number Generation – Imperial College London

Sept 2022

Completed as part of an Undergraduate Research Opportunity (UROP). Developed a report indicating the differences in the way Python, R, and C++ generate their random numbers. Produced a repository of functions allowing one to align pseudo-random number generation across the languages.

Point Processes for Equipment Failure Simulation

June 2022

A project completed as part of my undergraduate studies, in which I produced an A3 poster containing theory and simulations of stochastic processes being used to model the failure of pieces of equipment.

AI Decision Making Perpetuating Social Imbalances and Injustices – Imperial Horizons

Dec 2021

Essay completed as part of a module on Science and Technology Studies that I took in my first year at Imperial College. Achieved an Upper-Second Class mark.

Machine Learning and Its Applications in Particle Physics Research – Reading School

June 2019

A 5000 word report I completed as part of the Extended Project Qualification I took in sixth form.

Courses and Workshops

First Year Degree Courses – Imperial College London

Oct 2021 – June 2022

- Introduction to University Mathematics
- Analysis I
- Linear Algebra and Groups
- Calculus and Applications
- Probability and Statistics
- Introduction to Computation
- Introduction to Applied Mathematics
- Individual Research Project
- Science and Technology Studies

Second Year Degree Courses – Imperial College London

Oct 2022 – June 2023

- Analysis II
- Linear Algebra and Numerical Analysis
- Multivariable Calculus and Differential Equations
- Groups and Rings
- Probability for Statistics
- Lebesgue Measures
- Statistical Modelling I
- Interdisciplinary Research Computing
- Principles of Programming*

X-risk Workshop – Global Challenges Project

May 2023

A weekend worth of discussion sessions with members of the Effective Altruism community. We looked at issues in AI safety and Bio-risk.

Volunteering

Treasurer – Linstead Halls, Imperial College London

Oct 2021 – July 2022

Managing the finances of the halls such that the committee can effectively organize events for the residents.

Dog Fosterer – The Responsible Dog Rescue

May 2020 – Aug 2022

Rehabilitating dogs brought to the UK from shelters in Romania. Managing traits such as aggression and anxiety to make the dogs suitable for adoption.

Qualifications and skills

- Programming: Python (Intermediate), R (Intermediate), C++ (Basics)
- English (Native), Italian (Fluent)
- Royal Air Force Air Cadets Sergeant
 - Flying Qualifications (Including Fixed wing aircraft and Gliders)
 - Radio Communication Qualifications
 - Completed the Senior Non-Commissioned Officer Course, testing leadership and discipline
 - Completed courses in rifle handling, and obtained marksman qualifications
 - Achieved BTEC in Aviation Studies
 - Trained in basic fieldcraft (Including cold/hot weather training, outdoor cooking, and camping)
- Royal Life Saving Society (RLSS) National Pool Lifeguarding Qualification (NPLQ)
 - Automated External Defibrillator Qualification
- Bronze Duke of Edinburgh

Interests

- Geometric Deep Learning • Reinforcement Learning • AI Safety • Statistics for Applications • Triathlon
- Data Science Society