

Thomas Walker

Imperial College London
BSc Mathematics

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🌐 [LinkedIn Profile](#)

EDUCATION

University of Oxford - MSc Advanced Computer Science

October 2024 - September 2025

– Conditional offer.

Imperial College London - BSc Mathematics

September 2021 - June 2024

– First Year - 85%

* Placed top 5% for overall academic performance.

– Second Year - 86%

* Placed top 5% for overall academic performance.

Reading School - A-levels

September 2019 - June 2021

– Mathematics: A*, Further Mathematics: A*, Physics: A*, Extended Project Qualification: A*

EXPERIENCE

Student Researcher

June 2024 -

Helmholtz Munich - AIDOS Lab - Dr Bastian Rieck

– Looking at the interplay between the topology and interpretability of neural networks.

Student Researcher

July - September 2023

Imperial College London - Safe Artificial Intelligence Lab - Professor Alessio Lomuscio

– Investigating neural network generalization with a focus on PAC learning theory. Refined the evaluation of PAC bounds using testing certificates on regions of the input space.

Student Researcher

September - October 2022

Imperial College London - Dr Dean Bodenham

– Investigating how programming languages (Python, R, C++) generate pseudo-random numbers. Developing a repository of functions to align pseudo-random number generators.

Data Consultant

June - September 2022

BAE Digital Intelligence

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

Website Administrator

December 2021 - June 2024

Imperial Wiki Society

– Working on a student-led initiative to develop an online platform to host supplementary material for modules taught at the university. My focus is on managing the project and developing resources for the mathematics modules.

PAPERS

Tightening PAC Bounds with Formulation Verification

2024

Pre-print

PROJECTS

A Guide to PAC Bounds

July - August 2023

Imperial College London - Undergraduate Research Project

Jordan Algebras

June 2023

Imperial College London - Second Year Group Research Project

Reinforcement Learning Algorithm for HIV Treatment

March 2023

Imperial College London - Interdisciplinary Research Computing

Aligning Pseudo-Random Number Generators Across Programming Languages

September 2022

Imperial College London - Undergraduate Research Project

Point Processes for Equipment Failure Simulation

June 2022

Imperial College London - First Year Individual Project

AI Decision Making Perpetuating Social Imbalances and Injustices

December 2021

Imperial College London - Science and Communication Studies

Machine Learning and Its Applications in Particle Physics Research

June 2019

Reading School - Extended Project Qualification

PRESENTATIONS

Using Region Tests to Evaluate PAC Bounds

September 2023

Imperial College London - Verification of Autonomous Systems Group Seminar

Jordan Algebras

June 2023

Imperial College London - Group Research Project

Aligning Pseudo-Random Number Generation in Python, R and C++

October 2022

Imperial College London - 3-Minute UROP Thesis Talk

FUNDING

Undergraduate Research Project Funding

July-August 2023

Imperial College London - Department of Mathematics and Department of Computer Science

ARTICLES

The Prime Minister's Mathematical Propositions

July 2023

Imperial College London - Faculty of Natural Sciences Blog Post

WORKSHOPS

Centre for Theoretical Study at Charles University - Human Aligned AI Summer School

July 2024

– Four intensive days of talks, workshops, and discussions covering the latest trends in AI alignment research and broader framings of AI alignment research.

Mathematics for Deep Learning - Geometric Deep Learning

June 2024

– A workshop summarising the recent advances in the field of geometric deep learning.

Global Challenges Project - X-Risk

May 2023

– A workshop on investigating approaches taken to AI safety research.

Imperial Effective Altruism Society - AI Safety Fundamentals

October - December 2022

– Comprised of eight group discussion sessions on the literature surrounding the concerns of powerful AI systems and the research on AI safety.

TECHNICAL SKILLS AND INTERESTS

Spoken Languages (Intermediate): English, Italian

Programming Languages (Intermediate): Python, R, Latex, Markdown

Programming Languages (Basic): C++, HTML

Libraries (Python): Numpy, Scipy, Matplotlib, Pandas, PyTorch, Dash, Selenium, Plotly

Miscellaneous Qualifications : Royal Life Saving Society National Pool Lifeguarding Qualification, Bronze Duke of Edinburgh