

# Thomas Walker

07523101006

✉ thomas.mattia.walker@hotmail.co.uk

🔗 <https://thomaswalker1.github.io/>

🌐 LinkedIn Profile

## EDUCATION

---

### MSc Advanced Computer Science

University of Oxford

October 2024 - September 2025

### BSc Mathematics

Imperial College London

September 2021 - June 2024

– First Class Honours - 89% Final Grade

### A-levels

Reading School

September 2019 - June 2021

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

## EXPERIENCE

---

### Student Researcher

Helmholtz Munich - AIDOS Lab - Professor Bastian Rieck

June 2024 -

– Understanding how models represent concepts in their latent representations.

### Student Researcher

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

July - September 2023

– 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

Imperial College London - Dr Dean Bodenham

September - October 2022

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

### Data Consultant

BAE Digital Intelligence

June - September 2022

– 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

Imperial Wiki Society

December 2021 - June 2024

– 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 the Evaluation of PAC Bounds with Formulation Verification Results

arXiv

2024

## PRESENTATIONS

---

### Using Region Tests to Evaluate PAC Bounds

Imperial College London - Verification of Autonomous Systems Group Seminar

September 2023

### Jordan Algebras

Imperial College London - Group Research Project

June 2023

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

Imperial College London - 3-Minute UROP Thesis Talk

October 2022

## FUNDING

---

### Undergraduate Research Project Funding

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

July-August 2023

## ARTICLES

---

### The Prime Minister's Mathematical Propositions

Imperial College London - Faculty of Natural Sciences Blog Post

July 2023

## WORKSHOPS

---

**Spires** - Centre for Topological Data Analysis at University of Oxford

*August 2024*

- Bringing together leading researchers and young talent in the field of topological data analysis and cognate areas. With the applications of topological data analysis and the future of the field discussed.

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

*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.

**Geometric Deep Learning** - Mathematics for Deep Learning

*June 2024*

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

**X-Risk** - Global Challenges Project

*May 2023*

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

**AI Safety Fundamentals** - Imperial Effective Altruism Society

*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):** 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