Max Cairney-Leeming

Vienna, Austria

https://maxcl.co.uk max@cairneyleeming.co.uk

Education

Institute of Science and Technology Austria (ISTA): PhD Student

2023-current

PhD Student in the CVML group, under the supervision of Christoph Lampert
ELLIS PhD Student

Co-author on "Demystifying amortized causal discovery with transformers" [arXiv:2405.16924], whilst working with Francesco Locatello.

University of Oxford, Lady Margaret Hall

2019-2023

MMathCompSci Mathematics and Computer Science
First in Bachelors (Parts 2 & 3), with 72.5% overall, awarded scholarships for strong performance in each of 1st, 2nd and 3rd years.
Distinction in Masters, with 71.15% overall. Master's thesis titled "Deep generative modelling for encoding Gaussian process priors", supervised by Prof. Seth Flaxman

Experience

Department of Engineering Science, University of Oxford: Research Intern

Summer 2022

Project title: "Applying lattices & quaternions to the tractability of machine learning for polarisation adaptive optics", under Prof. Martin Booth.
Sought methods to improve ML performance & resource use for detection of polarisation aberrations from measurements, by identifying lattice structures in the cost functions modelled.

Opsydia: R&D Intern

Summer 2021

Integrated new laser hardware into R&D optics table, from unboxing and optical path calibration to writing control software and testing it on real diamond samples. Focused on laser power safety, as the laser had no automatic safety features. Communicated extensively with suppliers to fix bugs and understand new hardware. Documented my software and presented it to the team.

Tom Rocks Maths: Maths Outreach Intern

Summer 2020

Wrote, filmed, and edited several videos focused on fractals and 3d printing, aimed at engaging young people with mathematics. Strengthened my communication skills through many iterations of the scripts, with guidance from Dr. Tom Crawford. Won a department prize for my first video.
Built fractals.maxcl.co.uk, including interactive diagrams, to explain Lindenmayer systems (also a video subject), and convert a fractal to a 3D-printable model, using a Rust server to do this efficiently, including processing millions of triangles to achieve smooth curves on the model.

J A Kemp LLP: Intern

Summers 2018, 2019

Developed software to automatically file legal requests, incl. generating supporting documentation; and to compare internal data to those held by EU patent offices, working with lawyers throughout.

Skills

Leadership and communication

President, Oxford Millennium Orchestra	Ran an orchestra of ~70 players from the university and city, restarting it post-COVID by recruiting >30 new players, and organising two very successful concerts in the Sheldonian Theatre. Ran concert logistics with venue staff; sourced and organised thousands of pages of sheet music; and managed weekly rehearsals to ensure we were well prepared for concerts. Modernised ticketing system to allow easy payments online and with credit cards, resulting in record sales.
Department Ambassador	Helped students on a school visit to the Maths Institute with a range of extension problems, worked at the Oxford Maths Festival welcoming and registering families, and answered and moderated questions on virtual open days.

Personal Projects & Interests

Music	Grade 8 Distinction on cello and a dedicated member of an award-winning youth orchestra for 7 years, including leading my section, and now a university orchestra, which I organised for a year. Committed member of LMH chapel choir throughout my time at Oxford, and also recently Jesus College Chapel Choir. Member of the Philharmonsicher Chor at the University of Vienna
Software for Latin A-Level	Wrote software to annotate Latin texts using an interactive web UI for colourful word-by-word annotation. Successfully used throughout my A-Level, in class and for revision, resulting in an A*. Sourced the texts from the Perseus online classics project. Developed a vocabulary tester designed specifically for Latin grammar, using data parsed from Wiktionary data files.
Budgeting software	Created a personal budgeting system with automatic transactions imports using Open Banking. Learnt about budgeting and accounting practises to design UI. Used Twilio to send updates about recent transactions and answer basic queries about budgets.
Robotics	Experimented with robotics using a small rover, with particular interest in using a LiDAR sensor to map out its surroundings, by 3D printing mounts for it on a stepper motor for 360° rotation