

# MAC WALKER

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## WORK EXPERIENCE

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**Wood Mackenzie**, Environmental Data Consultancy | Product Intern | June 2024 - September 2024

- Worked within the Agile team to support product operations, learning the fundamentals of Agile methodology for modern software development, assisting project management operations
- Developed expertise in product analysis and optimising operational efficiency within software teams

**Opteran Technologies**, A.I, Autonomous Machines | Research Intern | June 2023 - August 2023

- Developed an information theory based technique for evaluating the parameters of spatial filters
- Created a spiking neural network model for image replication, using the resulting images with a neuroscience-inspired elementary motion detector to estimate global optical flow

## EDUCATION

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**University of Cambridge**, Magdalene College | MPhil Biotechnology | 2024 -2025

- Thesis: Creation of a Domain-Specific LLM for drug discovery in clear cell renal carcinoma
- Completing AI Safety research, investigating circuit transplantation in transformer -based models
- Member of various clubs, including CuAI, AI Safety Hub (Committee Member), Magdalene Men's Football Team

*Relevant courses: Biotechnology, Computational Neuroscience, Machine Learning for Materials and Molecules, Control and Computation in Biological Systems, Biosensors and Bioelectronics, Management of IP, International Business.*

**University of Edinburgh** | BSc Mathematics | 2020 - 2024

- Awarded high first class honours. Average: 78%, Average over Maths courses: 80%
- Final Year Project Title: Convolutional Gaussian Processes for Machine Learning
- Active member and player for Edinburgh University Men's Football Team, II's

*Relevant courses: Machine Learning in Python, Numerical Linear Algebra, Statistical Methodology, Linear Programming, Planning for a Start-Up, Applied Statistics, Applications of Digital Signal Processing & Fourier Theory*

**Nanyang Technological University**, Singapore | Year of Study abroad | 2022 - 2023

- 3.6 Grade-Point Average (GPA): Erasmus+ Grant for Academic Excellence (2022)
- Invited into the undergraduate research program, producing research focusing on Reinforcement Learning Education and literacy
- Completed a research report using transformer-based models to classify implicit hate speech using natural language processing. Project grade: 97%, highest over a class of 60 students

*Relevant courses: Algorithms for the Real World, Statistical Learning and Data Mining, Stochastic Processes, Mathematics of Deep Learning, Ordinary Differential Equations, Complex Analysis, Real Analysis, Abstract Algebra*

## LEADERSHIP EXPERIENCE

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**The Student Lens**, Online Newspaper - Founder | May 2020 - September 2021

- Founded an online newspaper which contained articles written by students in four different continents
- Produced a targeted social media plan to increase engagement, resulting in a readership in the thousands
- Organised teams of writers, editors and social media manager to quickly release news and opinion piece

**Youth/Student Officer** for large political party in Edinburgh Central | Mar 2021 - Sep 2021

- Organised the mobilisation and canvassing of students during the Scottish Parliamentary elections
- Optimised strategy for outreach and impact of political message across key student and youth groups

## TECHNICAL SKILLS

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- Python, with expertise in NumPy, SciPy, and Matplotlib: Used in multiple academic and personal projects
- PyTorch and Scikit-Learn: Developed and trained various ML models, encompassing classical ML and modern neural network architectures, including LLM's, GNN's and Convolutional GP's
- OpenCV: Professional expertise in computer vision, specialising in optical flow and spatial filtering
- R - Academic experience for data analysis, data exploration, and the architecture of classical ML models
- MATLAB - Academic experience for various audio programming and digital signal processing tasks