

Ethan Kosak-Hine

kosakhineethan@gmail.com

Education

Royal Holloway, University of London: MSci Physics (2:1)	Sep 2019 – Jul 2023
University College London: MSci Physics intercollegiate program (First class)	Sep 2022 – Jul 2023
Queen Mary, University of London: MSci Physics intercollegiate program (First class)	Sep 2022 – Jul 2023
Vyners School	Sep 2012 – Jun 2019

Academic Achievements

- Master's Thesis: Searching for evidence of climate change using machine learning (Grade: First class)
- Research Review: Lepton Flavour Violation searches at the ATLAS detector (Grade: First class)
- Gravitational Wave Data Analysis (Grade: First class)
- Extrasolar Planets and Astrophysical Discs (Grade: First class)
- Research Project: Higgs boson decay phenomenology and theory (Grade: First class)

Skills

- **Programming and Data Analysis Tools:** Proficient in Python, Mathematica, NumPy, matplotlib, pandas, PyTorch and scikit-learn. These skills have been refined through academic coursework and independent projects, providing a strong foundation in data analysis, machine learning, and statistical modelling. Experience using Git and GitHub for version control.
- **Machine Learning and Statistical Analysis:** Experienced in applying machine learning models to complex data sets, with a focus on climate and particle physics data, with some AI safety research. Proficient in statistical tests, such as frequentist tests, p-values, and treatment of nuisance parameters. Expertise in Monte Carlo methods, including random number generation, transformation, and Markov Chain Monte Carlo.
- **Physics Research Tools:** Gained hands-on experience using specialised physics software, such as PyROOT for ROOT data analysis framework used in particle physics and Mathematica for complex calculations.
- **Graphic Design:** Skilled in Photoshop and other graphic design tools, with practical experience in creating visually compelling content for digital platforms.

Work Experience

Embedded Systems Developer, Atomic Weapons Establishment	Oct 2023 – Present
<ul style="list-style-type: none">• Responsible for the design, characterisation, procurement, installation, commissioning, and in-service support of instrumentation and equipment (starting soon).	
Summer Research Placement, Royal Holloway Physics Department	Jun 2023 – Sep 2022
<ul style="list-style-type: none">• Optimised a neural network model used to separate potential signal events from background events in simulated data.	
Independent Science and Mathematics Tutor	Jul 2017 – Mar 2020
<ul style="list-style-type: none">• Tutored nine students from KS3 to A-level in Physics, Biology, and Mathematics.	

Extra-Curricular Experience

Researcher, Supervised Program on Alignment Research	Sep 2023 – Dec 2023
<ul style="list-style-type: none">• Conducted research into how activation steering and representation engineering can be used to reduce sycophancy in LLMs.	
AI Alignment Bootcamp, ML4Good Germany	Aug 2023 – Sep 2023
<ul style="list-style-type: none">• Selected for an exclusive ten-day AI bootcamp in Germany that provided advanced training in deep learning and AI safety research.	
Co-Founder, SimpleAISafety.org	Sep 2023 – Present
<ul style="list-style-type: none">• Co-founded simpleaisafety.org, an online resource that conveys technical AI safety concepts in varying difficulty levels to increase the accessibility of the content, as well as translating them to multiple languages.	
Content Writer, The Founder Newspaper	Sep 2021 – Jun 2022
<ul style="list-style-type: none">• Enhanced written communication skills by explaining complex concepts to a general audience.	

Interests

Philosophy: Passionate about ethics and moral philosophy, including Effective Altruism and Veganism. Devote considerable time to researching, advocating, and volunteering in these areas.

Mindfulness: Regular practitioner of mindfulness meditation and Stoicism.

Blackbelt in Taekwondo

Referees (available on request)