Alistair Letcher

Personal Information

Oxford, United Kingdom
aletcher@robots.ox.ac.uk
aletcher.github.io
Google Scholar

Education

2024– **PhD in Information Engineering**, *Oxford University*, UK
Research in multi-agent learning, reinforcement learning and AI safety. Supervised by Jakob Foerster.

2017–2018 **MSc in Mathematics and Foundations of Computer Science**, *Oxford University*, UK
Ranked 1st with an average of 94.4%. Thesis: *Stability and Exploitation in Differentiable Games*.

2013–2017 **Master of Mathematics**, *Durham University*, UK
Ranked 1st with an average of 93%. Thesis: *Algebraic Features of Multiple Zeta Values*.

Publications

2025 **How do Pauli Gates Propagate?** *preprint*.
2025 **An Optimisation Framework for Unsupervised Environment Design** *[RLC]*.
2024 **Tight Gradient Bounds for Parameterized Quantum Circuits** *[Quantum Journal]*.
2023 **Adversarial Cheap Talk** *[ICML]*.
2022 **Discovered Policy Optimisation** *[NIPS]*.
2022 **COLA: Consistent Learning with Opponent-Learning Awareness** *[ICML]*.
2021 **On the Impossibility of Global Convergence in Multi-Loss Optimization** *[ICLR]*.
2020 **Ridge Rider: Diverse Solutions by Following Eigenvectors of the Hessian** *[NIPS]*.
2019 **Differentiable Game Mechanics** *[JMLR]*.
2019 **Stable Opponent Shaping in Differentiable Games** *[ICLR]*.
2018 **Automatic Conflict Detection in Police Body-Worn Audio** *[ICASSP]*.

Awards

2018 **Outstanding Poster Award** at the San Diego JMM (Joint Mathematics Meetings).
2018 **Best Thesis** in Oxford Computer Science (Richard Bird Prize).
2017 **Best Thesis** in Durham Mathematics (Iain MacPhee Memorial Prize).
2017 **Best Student** in Pure Mathematics (Tony Corner Prize).
2015, 2016 **Vice-Chancellor's Scholarship for Academic Excellence** (twice).

Research Code

2021 **Global Convergence in Differentiable Games**, Jupyter Notebook.
2020 **Stable Opponent Shaping**, Jupyter Notebook.