

Luke Rickard MEng AFHEA

Website: lukerickard.co.uk

Email: rickard@robots.ox.ac.uk

Mobile: +447787 438 718

EDUCATION

University of Oxford

- *DPhil in AIMS CDT* *October 2021 - Present(Expected Completion: October 2025)*
Data-driven Robust Verification and Control.
Supervised by Profs. Kostas Margellos and Alessandro Abate

University of Oxford

- *MEng Engineering Science: First Class, ranked 8th of 147* *October 2017 - June 2021*

Selected Courses: Machine Learning; Robust & Distributed Control; Probability, Systems & Perturbation Methods.

RESEARCH PAPERS

- **Continuous-time Data-driven Certificate Synthesis (in progress):** We are investigating extending the techniques in Data-Driven Neural Certificate Synthesis to continuous-time systems.
- **Data-Driven Neural Certificate Synthesis (Luke Rickard, Alessandro Abate, Kostas Margellos), submitted to Automatica:** We explored techniques to synthesise a neural network based certificate for verification of discrete-time dynamical systems, using only a finite set of sampled trajectories.
- **Learning Robust Policies for Uncertain Parametric Markov Decision Processes (Luke Rickard, Alessandro Abate, Kostas Margellos), selected for oral presentation as one of the top 7% of papers at L4DC 2024:** Developed a method for learning a single policy for uncertain parametric Markov decision processes, provided probably approximately correct guarantees on satisfaction of logic formulae.
- **Formal Controller Synthesis for Markov Jump Linear Systems with Uncertain Dynamics (Luke Rickard, Thom Badings, Licio Romao, Alessandro Abate), presented at QEST 2023:** Investigated a new method for synthesising certifiably correct controllers for Markov jump linear systems with hybrid, stochastic and partly unknown dynamics.

TEACHING

Engineering Science

University of Oxford

- *Master's Project Co-Supervisor* *Oct 2024 - Present*
Joint (with Prof. Kostas Margellos) supervision of a 4th year engineering student in Safety Informed Neural Networks for Control of Autonomous Ground Vehicles.

Engineering Science

University of Oxford

- *Lab Demonstrator* *Jan 2023 - Present*
Demonstrating in various undergraduate control labs and the 1st year AIMS CDT DPhil labs.

Worcester College

University of Oxford

- *Retained Lecturer for Engineering Science* *Jan 2022 - Present*
Conducting tutorials and revision classes for 1st and 2nd year undergraduate students. Primarily focussed on electronics, but extending to classes across a range of topics including mathematics and control. Further responsibilities include the setting, and marking, of mock exams.

PROFESSIONAL EXPERIENCE

Seneca Learning

Remote

- *Private Tutor* *Jan 2021 - November 2021*
Tutored on a wide range of STEM subjects for students from KS3 to A-level.

SteelRock Technologies

Newport, UK

- *Technical Intern* *Aug 2020 - Oct 2020*
Developed software in C++, Python and Lua for deployment on a drone system.

Defence Technical Undergraduate Scheme

Birmingham, UK

- *Officer Cadet* *Oct 2017 - Mar 2019*
Developed leadership, management and team working skills, through weekly training nights and longer exercises.

AWARDS AND GRANTS

Advanced Teaching and Learning Programme

University of Oxford

- *Teaching Qualification* *Mar 2024-Oct 2024*
Teaching development course offered by the Centre for Teaching and Learning, Associate Fellow of the Higher Education Academy awarded upon successful completion.

VOLUNTEERING

30th Abingdon Scout Group

Abingdon, UK

- *Scout Leader* *Jul 2022 - Present*
Leadership role involving organising a programme, carrying out activities, and fostering growth in young people.