

Luke Rickard

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EDUCATION

- **University of Oxford** Oxford, UK
Autonomous Intelligent Machines and Systems CDT October 2021 - Present
Selected Courses: Data Estimation and Inference; Optimization; Reinforcement Learning; Game Theory; Autonomous Robotics; Systems Verification
- **University of Oxford** Oxford, UK
MEng Engineering Science: First Class, ranked 8th of 147 October 2017 - June 2021
Selected Courses: Machine Learning; Machine Vision and Robotics; Robust and Distributed Control; Nonlinear and Optimal Control; Probability, Systems and Perturbation Methods; Mathematical Techniques

PROJECTS

- **Off Belief Learning for Zero Sum Games:** (Work in progress) Applied state-of-the-art cooperative reinforcement learning techniques (Off Belief Learning) to competitive games and explored the effects. Code was written in Python. (AIMS Mini-Project)
- **Sample-Based Control of Discrete Time Stochastic Hybrid Systems with Non-Gaussian Noise:** Developed robust control techniques for stochastic hybrid systems, using a sample based approach to uncertainty, allowing for application to non-Gaussian noise. Used Python for model generation and PRISM for model checking. (AIMS Mini-Project)
- **Distributed Drone Collision Avoidance:** Worked on a MATLAB program for the distributed optimization of trajectories of a fleet of quad-copters. Worked to ensure they could each reach their individual target locations without collisions. (Summer Project)
- **Learning Equilibria in Energy Markets:** Studied a plug-in electric vehicle charging problem, with the goal of optimising individual charging schedules to reduce cost to the user, and investigating the resulting game theoretical equilibria. Work was carried out in MATLAB. (Master's Project)
- **Autonomous Peer-to-Peer Multi-Agent Unmanned Aerial Delivery System:** Wrote an android app in java as a mock delivery app, which interfaced with a C++ server to handle orders. This was part of a group project designing a delivery system using drones as the delivery vehicle. (Bachelor's Group Research Project)

TEACHING

- **Worcester College** Oxford, UK
Retained Lecturer for Engineering Science Jan 2022 - Present
Academic tutor at Worcester college, carrying out small tutorials for 2 or 3 undergraduate students. Have taught mathematics, electronics and control theory courses.
- **Seneca Learning** Remote
Private Tutor Jan 2021 - November 2021
Tutored on a wide range of STEM subjects, with student ranging in age from KS3 through to A-level.

RELEVANT EXPERIENCE

- **SteelRock Technologies** Newport, Wales
Technical Intern Aug 2020 - Oct 2020
 - **Object Tracking:** Produced object tracking software in C++ using the open CV library and communicating with an Arduino board through a serial connection.
 - **Simulation:** Set up gazebo simulation software for testing and development. Used lua/ Python to write programs to deploy onto a drone, particularly for interfacing with the C++ script for object tracking.
- **Defence Technical Undergraduate Scheme** Birmingham, UK
Officer Cadet Oct 2017 - Mar 2019
 - **Leadership, Management and Team working:** Developed leadership, management and team working skills, through weekly training nights and longer exercises. Received an ILM level 3 award in leadership and management.

VOLUNTEERING

- **30th Abingdon Scout Group** Abingdon, UK
Assistant Scout Leader Jul 2022 - Present
Leadership role involving organising a programme, carrying out activities, and a significant amount of training in practical and leadership skills.
- **Worcester College Middle Common Room** Worcester College, Oxford, UK
Computing Representative November 2021 - Present
Voluntary role in organising and maintaining computer provision for the middle common room.