Callum Rhodes – CV

Please visit callum-rhodes.github.io for an interactive version of this CV

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Employment

2023 - present **Dyson Robotics Lab, Imperial College London – Research fellow**

- Under the supervision of Prof. Andrew Davison, developed distributed inference techniques for efficient computation of 3D vision problems, as well as leveraging monocular learnt priors for bootstrapping SLAM systems.
- Current projects include: Applying a dynamic multigrid structure to distributed inference techniques to speed up convergence, leveraging learned priors to achieve 3D normal integration with monocular images and estimating extrinsic camera rotation using structure in the environment.

2022 - 2023 **Frazer-Nash Consultancy – Control engineer**

- Worked on designing the control systems of assured autonomous UAVs.
- Designed critical functionality for achieving the project goals and successfully deployed the system to hardware.

2019 - 2022 **Loughborough University - Research Associate**

- Alongside PhD studies, undertook the lead research role on a DSTL funded project investigating efficient source term estimation using unmanned aerial vehicles.
- Due to the quality of the research output, was able to secure several consecutive years of additional project funding to develop the source search system further.

2015 - 2016 **Bosch - Diesel calibration engineer (placement)**

- Involved with the release testing for final calibrations of diesel engine products and as part of this, worked to strict deadlines for external customers. Also had frequent customer facing interactions involving delivery of test vehicles and joint project planning between Bosch and the customer.

Education

2018 – 2022 **Loughborough University – PhD Field Robotics**

- PhD candidate in autonomous systems. Researching methods for automating robotic first response systems for safe and efficient situational awareness of complex HAZMAT and disaster scenarios.
- Published in several International conferences and journals including: ICRA, IROS, RAL and TASE.
- Won first place at the school's research day for the research output achieved over the course of the PhD

2013 - 2018 **Loughborough University – MEng Automotive Engineering**

- 1st class with hons
- Final Year Project developing an autonomous exploration system for mobile robotics

2006 - 2013 **Heckmondwike Grammar School – A Levels**: A*AAA - Maths, further maths, physics, chemistry

Extracurricular Events - Robotics

ELROB 2022

- Lead a team of researchers from Loughborough University in a European robotics trial aiming to test state of the art remote CRBN robotics tools for the acquisition of real-time radiation maps.
- Showcased PhD research and successfully identified the location of many radiation sources within an a-priori unknown and complex abandoned building.

EnRicH 2021

- Lead the first UK team to attend the European robotics hackathon located inside the Zwentendorf nuclear power plant, Austria. The challenge required semi-autonomous flight of a small UAV whilst mapping radiation signals through a 40m shaft.
- Achieved 2nd place in the UAV and mapping categories using only a 450mm vision only quadcopter.

Publications

Published in several in top international conferences and journals including ICRA, IROS and RAL. Please visit my google scholar page for a full list of my publications: Scholar link

Additional Skills/Qualifications

Software skillset
Python
MATLAB / Simulink
Linux / ROS
C++
Microsoft office suite
NX CAD
Simscale CFD

Other skills
Full, clean car and motorbike licence
Basic Mandarin and Japanese proficiency
Limited Cantonese and French

References available upon request