Rob **Weston**

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Summary

A final year PhD student at the Applied Artificial Intelligence (A2I) Group, University of Oxford, researching at the intersection of machine Learning, autonomous driving and robotics. For more info please see my **website**.

Education

PhD in Machine Learning and Robotics
Oxford, United Kingdom

Applied Artificial Intelligence Group, University of Oxford — *Oct. 2017 - ongoing*

- Using probabilistic and self-supervised deep learning approaches to improve radar perception and odometry systems for autonomous vehicle and mobile robot applications
- Experience with Computer Vision, Generative Models, Deep Learning and Probabilistic Modelling
- Supervised by Prof. Ingmar Posner

MEng Engineering Science
Oxford, United Kingdom

Univesity of Oxford — *Oct. 2013 - Jun. 2017*

- 1st class honours
- Specialised in Information Engineering, Robotics, Mathematical Engineering, Machine Learning, Control Theory

Experience

Industry

Research Intern
Seattle, USA

Nvidia — *July 2021 - Present*

- Supervised by Stan Birchfield with the computer vision group headed by Jan Kautz
- Large-scale and 3D semantic mapping and scene understanding with Stereo cameras for Autonomous Vehicle applications

Machine Learning and Computer Vision Consultant
Oxford, United Kingdom

Living Optics — *Jan 2021 - April 2021*

- Machine Learning for hyper-spectral imaging
- Provided technical advice and recommendations for a hyper-spectral imaging project

Data Science Intern
Oldham, United Kingdom

Innovative Technology — *Jun 2017 - Sep 2017*

- Using Gaussian processes for hyper-spectral bank note validation

Academic

Undergraduate College Lecturer and Admissions
Oxford, UK

Keble College, University of Oxford — *March 2018 - June 2021*

- Teaching 1st and 2nd year undergraduate students Civil and Electrical Engineering
- Interviewed potential applications for undergraduate Engineering Science at the University of Oxford

Publications

Fast-MbyM: Leveraging Translational Invariance of the Fourier Transform for Efficient and Accurate Radar Odometry
ICRA

Rob Weston, Matt Gadd, Daniele De Martini, Paul Newman, Ingmar Posner — *2022*

- Under review as a conference paper at the International Conference on Robotics and Automation (ICRA) 2021

There and Back Again: Learning to Simulate Radar Data for Real-World Applications
ICRA

Rob Weston, Oiwi Parker Jones, Ingmar Posner — *2021*

- Published as a conference paper at the International Conference on Robotics and Automation (ICRA) 2020

Masking by Moving: Learning Distraction-Free Radar Odometry from Pose Information *CORL*

Dan Barnes, **Rob Weston**, Ingmar Posner *2019*

- Published as a conference paper at the Conference on Robot Learning (CORL) 2019

Probably Unknown: Deep Inverse Sensor Modelling In Radar *ICRA*

Rob Weston, Sarah Cen, Paul Newman, Ingmar Posner *2019*

- Published as a conference paper at the International Conference on Robotics and Automation (ICRA) 2019

Skills and Interests

Programming	Python (advanced), C++ (basic), HTML, CSS, JavaScript (Exposure)
Frameworks	Pytorch, Tensorflow, OpenCV, Eigen
Interests	Climbing, Cycling, Running, Being Outdoors, Life Drawing

Talks and Conferences

May 2021	**Poster,** International Conference on Robotics and Automation	*Xi'an, China*
Sep 2019	**Keynote,** "Self-supervised learning for autonomous vehicles" at the Deep Learning Summit	*London, UK*
June 2019	**Keynote,** Workshop on self-supervised learning for autonomous vehicles, International Vehicle Symposium	*Paris, France*
June 2019	**Speaker,** "Why doesn't my car drive itself yet?" at Keble College AI Symposium	*Oxford, UK*
May 2019	**Poster,** International Conference on Robotics and Automation	*Montreal, Canada*

Software

Xmen *UK*

Python Experiment API *January 2020 - Present*

- Developed a python experiment API and command line tools to facilitate fast clean and reproducible experimentation
- Automatic experiment configuration compatible with the SLURM job manager
- Find it at *https://github.com/robw4/xmen*

Outreach

The Brilliant Club *UK*

Scholars Programme Tutor *September 2018 - March 2021*

- Delivered maths catch up tutorials to secondary school students who fell behind as a result of the pandemic
- Curated and delivered an introductory university-style course on Machine Learning and autonomous vehicles for years 10 - 13 designed to encourage students from under represented backgrounds to apply to top UK universities

Keble At Large Access Project *Oxford, UK*

Keble College, University of Oxford *September 2013 - Present*

- Presented university-style taster lectures on Machine Learning and autonomous vehicles to groups of thirty students
- Participated in Q&A sessions to dispel the myths of the Oxford interview process and engineering admissions