# **Jacques** Cloete

□ jacques@robots.ox.ac.uk • • • jacquescloete.github.io

- **in** jacquesCloete
- Education

#### University of Oxford

DPhil Autonomous Intelligent Machines and Systems (AIMS CDT)

- Funding: EPSRC Centre for Doctoral Training
- Relevant Courses: Autonomous Robotics, Machine Learning, Reinforcement Learning, Modern Control, Data Estimation & Inference, Systems Verification, Deep Learning in Distributed & Constrained Systems, Deep Learning for Big Data, Computer Vision, Optimization

#### University of Oxford

MEng Engineering Science

- Grade: First Class
- Thesis: Locomanipulation Skills for Quadrupedal Mobile Manipulators
- Group Project: Designing an Autonomous Service Robot
- **Relevant Courses:** Machine Vision & Robotics, Machine Learning, Model-Predictive Control, Software Engineering, Information Engineering, Mathematical Techniques

### **Research Experience**

### **DPhil Thesis**

- Oxford Robotics Institute, University of Oxford
- Supervised by Profs. Ioannis Havoutis and Alessandro Abate, investigating the learning of robotic manipulation skills with generalization across tasks and real-time adaptation to task environment dynamics.

○ Some recent work available to watch here: https://youtu.be/rAoSj5sefgE

### **Master's Thesis**

Oxford Robotics Institute, University of Oxford

• Supervised by Prof. Ioannis Havoutis and Dr. Wolfgang Merkt, investigating adaptive robotic manipulation of articulated devices for quadruped robots with arms.

### **Research Internship**

- Oxford Robotics Institute, University of Oxford
- Funding: Department of Engineering Science EUROP scheme.
- Supervised by Prof. Ioannis Havoutis and Dr. Wolfgang Merkt, investigating robotic mobile manipulation.

### **Research Internship**

- Hofmann Group, University of Oxford
- **Funding:** Department of Engineering Science EUROP scheme.
- Supervised by Profs. Felix Hofmann and Edmund Tarleton, investigating the identification of dislocations and computation of Burgers vectors in material samples using elastic strain and lattice rotation data.

### Publications

- o Cloete J, Merkt W, Havoutis I. (2024) "Adaptive Manipulation Using Behavior Trees." arXiv preprint
- o Cloete J, Tarleton E, Hofmann F. (2022) "Computation of Burgers Vectors from Elastic Strain and Lattice Rotation Data." Proc. R. Soc. A, 478(2263)

### **Key Skills**

- **Programming Languages:** Python, C++, MATLAB & Simulink, LATEX
- o Robotics: ROS, Gazebo, Isaac Lab, Trajectory Optimisation, Task Planning, Model-Predictive Control, Hardware Experience (ANYmal C, Unitree Z1, Kinova Jaco 1, Neobotix MPO 700)
- Machine Learning: PyTorch, TensorFlow, Weights & Biases, Reinforcement Learning
- O Misc: Linux, Git, Docker, Hydra, CAD (Solidworks, Fusion 360, OnShape), Microsoft Office
- Languages: English (Native)

## October 2022 – May 2023

October 2023 – Present

### July – August 2022

#### July – October 2021

October 2019 - July 2023

October 2023 – Present

### **Teaching Experience**

#### Master's Project Co-Supervision

Oxford Robotics Institute, University of Oxford

• Co-supervise Engineering Master's projects at the Oxford Robotics Institute alongside my DPhil supervisor.

### **Public Engagement with Research**

Oxford Maths Festival 2024

• Led a public engagement activity teaching key concepts of reinforcement learning in an approachable way by means of a pirate-themed treasure hunt. The activity was made as a computer game coded in MATLAB.

### **OxRAM Software Lecture Series**

Oxford Robotics and Additive Manufacturing Student Society

• Presented a lecture series teaching the fundamentals of ROS for the OxRAM Robot Arm Project.

### **Other Relevant Experience**

#### **3D Printed Robot Arm Project**

Oxford Robotics and Additive Manufacturing Student Society

• Project leader (October 2021 – September 2023)

• Treasurer (October 2021 – September 2022)

• Project member (October 2019 – September 2021)

### Academic Achievements & Awards

### **Gibbs** Prize

Gibbs Prize	September 2023
University of Oxford	_
$\odot$ Awarded for excellent performance - ranked $1^{st}$ place in Final Y	lear University Engineering examinations.
Milliard Scholarship	October 2021, renewed November 2022
<ul> <li>Awarded for excellent performance in collections and University</li> </ul>	ty examinations.
<ul> <li>Head of Department's Prize</li> <li>University of Oxford</li> <li>Awarded for excellent performance - ranked 1<sup>st</sup> place in 2<sup>nd</sup> Yea</li> </ul>	August 2021
<ul> <li>Edgell Sheppee Prize</li> <li>University of Oxford</li> <li>Awarded for outstanding laboratory work in the Department of</li> </ul>	of Engineering Science.
<b>Exhibition</b> <i>Trinity College, University of Oxford</i>	November 2020

• Awarded for excellent performance in collections and University examinations.

October 2023 – Present

May 2024

**October – November 2022** 

October 2019 – September 2023