

Elle Miller

🏠 [elle-miller.github.io](https://github.com/elle-miller) ✉ elle.miller@ed.ac.uk
in [ellemiller101](#) 📄 [google scholar](#)

EDUCATION

- 2023 – present **Ph.D.** in Computer Science UNIVERSITY OF EDINBURGH
Thesis: “*Representation learning in RL for tactile robot control*”.
- 2017 – 2022 **B.Eng.** in Mechatronics (Space) &
B.Sc. in Advanced Physics UNIVERSITY OF SYDNEY
Grade: High Distinction
Thesis: “*Learning with less labels for off-road semantic segmentation*”, undertaken at NASA JPL.

PUBLICATIONS

1. *Unknown object grasping for assistive robotics.*
EM, Maximilian Durner, Matthias Humt, Gabriel Quere, Wout Boerdijk, Ashok M. Sundaram, Freek Stulp, and Jorn Vogel. ICRA 2024.
2. *The formation of wide exoKuiper belts from migrating dust traps.*
EM, Sebastian Marino, Sebastian Stammer, Paola Pinilla, Christian Lenz, Til Birnstiel, and Thomas Henning. MNRAS 2021.

EXPERIENCE

- 2025 summer Visiting PhD Researcher WASEDA UNIVERSITY
Implemented sim-to-real reinforcement learning for caregiving tasks on the AIREC robot.
- 2023 Robotics Research Engineer DLR INSTITUTE FOR ROBOTICS AND MECHATRONICS
Designed an assistive manipulation system to promote user agency in automated grasping of unknown objects with the EDAN robot, resulting in an ICRA publication.
- 2022 Visiting Student Researcher NASA JET PROPULSION LABORATORY
Developed methodologies to achieve reliable visual segmentation of off-road terrains from small labelled datasets as part of the DARPA RACER Challenge. I was selected by NASA to join the JVS RP programme through a University of Sydney scholarship.
- 2022 Robotics Research Intern UNIVERSITY OF EDINBURGH
Integrated a dual-armed torso with an omnidirectional mobile base in software (e.g. sensor drivers, motor controllers) and implemented whole-body control for human-robot interaction. Meet EVA the assistive robot here.
- 2020 – 2021 Astrophysics Research Intern MAX PLANCK INSTITUTE FOR ASTRONOMY / UNI OF CAMBRIDGE
Proposed a new theory of debris disc formation after a 1.5 year study of planetesimal formation in simulation. Continued research as my supervisor moved institutions and I was a full-time student. Ran 1000+ simulations which resulted in a first-author MNRAS paper. I was 1 of 5 interns to be selected internationally at MPIA.
- 2020 Summer Firmware Engineering Intern COCHLEAR
- 2019 summer Research Scholar in Cosmology AUSTRALIAN NATIONAL UNIVERSITY
- 2019 Space Engineering Intern SABER ASTRONAUTICS

HONORS

2025	Invitation, Tactile Sensing and Processing Summer School 2025	DRESDEN
2025	Longlisted for Student Tutor of the Year	UNIVERSITY OF EDINBURGH
2025	Best talk at the annual CDT conference	EDINBURGH CENTRE FOR ROBOTICS
2024	Best talk at the annual CDT conference	EDINBURGH CENTRE FOR ROBOTICS
2022	Engineering Student Industry Placement Scholarship	NASA JPL & UNIVERSITY OF SYDNEY
2022	Dean's Excellence in Academic Performance	UNIVERSITY OF SYDNEY
2017 – 2022	Sydney Scholars Award	UNIVERSITY OF SYDNEY
2016	Proxime (ATAR 99.6, top 0.6% of state)	SECONDARY SCHOOL

SKILLS

Technical: Reinforcement learning, supervised learning, robotics.

Tools: Software (Python, C++, Matlab, URDF), middleware (ROS), simulators (Isaac Lab, MuJoCo, Gazebo), ML (PyTorch, Slurm, WandB).

Soft: Critical thinking, writing, public speaking, leadership, positivity, resilience

TEACHING

Teaching Assistant	Reinforcement Learning INFR11010	UNIVERSITY OF EDINBURGH
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SERVICE

2024 – present	Postgraduate Student Representative	INSTITUTE FOR PERCEPTION, ACTION, AND BEHAVIOUR, UoE
2019	Social Secretary	EDINBURGH UNIVERSITY MECHANICAL ENGINEERING SOCIETY
2019	Events Director	SYDNEY UNIVERSITY MECHATRONICS ORGANISATION
2018	Secretary	SYDNEY UNIVERSITY PHYSICS SOCIETY
2017 – 2018	1st & 2nd Year Representative	SYDNEY UNIVERSITY ROCKETRY TEAM