

DANIEL BEECHEY

[Email](#) ◇ [Google Scholar](#) ◇ [Website](#) ◇ [GitHub](#)

INTERESTS

Reinforcement Learning, LLM-based Agents, Explainable AI, Continual Learning, Self-Evolution, Exploration, Open-ended Learning, Bounded Rationality

EDUCATION

PhD in Reinforcement Learning 2026

University of Bath, UK

Supervisors: Özgür Şimşek (Computer Science), Emma Carmel (Social Policy)

Dissertation: *Explaining Reinforcement Learning with Shapley Values: Theory and Algorithms*

MRes in Accountable, Responsible, and Transparent AI 2022

University of Bath, UK

Dissertation: *Explaining Reinforcement Learning with Shapley Values*

Grade: Distinction

MSc in Data Science 2021

University of Bath, UK

Dissertation: *Autonomous Routing of Printed Circuit Boards with Hierarchical Reinforcement Learning*

Grade: Distinction

BSc (Hons) in Mathematics 2020

University of Bath, UK

Grade: First Class

EXPERIENCE

Research Scientist, H Company, London 2026 - present

Using RL to train computer-use agents.

Research Intern, H Company, London 2026 - 2026

Using RL to train computer-use agents.

Research Scientist, Huawei Noah's Ark Lab, London 2025 - 2026

Led a research team focused on open-ended reinforcement learning for LLM-based agents.

Developed *Darwin Mobile Agent*, the first fully open-source, end-to-end pipeline for large-scale online reinforcement learning and inference of mobile GUI agents.

Co-Manager of the Bath RL Lab, University of Bath 2023 - 2025

Organised lab activities, including weekly lab meetings, research sessions, paper discussions, and social events.

Teaching Assistant, University of Bath 2020 - 2025

Modules: Reinforcement Learning; Statistics for Data Science; Software Technologies for Data Science; Programming, Foundations, and Connections; Programming and Discrete Mathematics; Mathematical Methods and Applications

Supervised 10 MSc and 5 BSc students.

AI Lecturer, University of Bath 2022 - 2023

Lectured MSc Reinforcement Learning.

Supervised 5 MSc and 2 BSc students.

AWARDS

University of Bath, Doctoral Recognition Award	2024
Bath Conference of Computer Science, Best Overall Contribution	2023
Inter-CDT Conference on AI, Best Poster	2023

PUBLICATIONS

<i>Darwin Mobile Agent: A Roadmap for Self-Evolution</i>	<i>Preprint, 2025</i>
Daniel Beechey , Derek Yuen, Jianheng Liu, et al.	
<i>A Theoretical Framework for Explaining Reinforcement Learning with Shapley Values</i>	<i>Preprint, 2025</i>
Daniel Beechey , Thomas M. S. Smith, and Özgür Şimşek	
<i>Approximating Shapley Explanations in Reinforcement Learning</i>	<i>NeurIPS, 2025</i>
Daniel Beechey and Özgür Şimşek	
<i>Reformulating Reactivity Design for Data-Efficient Machine Learning</i>	<i>ACS Catalysis, 2023</i>
Toby Lewis-Atwell, Daniel Beechey , et al.	
<i>Explaining Reinforcement Learning with Shapley Values</i>	<i>ICML, 2023</i>
Daniel Beechey , Thomas M. S. Smith, and Özgür Şimşek	

OPEN-SOURCE PROJECTS

Darwin Mobile Agent : An end-to-end pipeline for large-scale online reinforcement learning.
FastSVERL : A scalable library for approximating Shapley value explanations in reinforcement learning.

TALKS

Explaining Reinforcement Learning with Shapley Values: Theory and Algorithms	
Mila RL Sofa	<i>Sep 2026</i>
Cohere Labs Open Science Community Talks	<i>Aug 2026</i>
MARBLE Research Group, University of Edinburgh	<i>Sep 2025</i>
A Theoretical Framework for Explaining Reinforcement Learning with Shapley Values	
ART-AI Colloquium Series	<i>Feb 2025</i>
Bath Doctoral Festival of Ideas	<i>Jul 2024</i>
An Introduction to Explainable and Hierarchical Reinforcement Learning	
Bath AI Society	<i>Apr 2024</i>
Explaining Reinforcement Learning with Shapley Values	
Bath Conference of Computer Science	<i>Jul 2023</i>
Alan Turing Institute	<i>Jun 2023</i>

TECHNICAL SKILLS

Frameworks & Libraries	PyTorch, HF Transformers, VeRL, Ray, Gym, NumPy, Matplotlib
Programming Languages	Python, Bash, R, Matlab
Tools & Platforms	Git, Linux, SLURM, wandb, Jupyter, Conda
RL Algorithms	PPO, GRPO, DQN, DDPG, SAC, Hierarchical RL
Model Architectures	LLMs, Transformers, VAE, CNN, MLP

REVIEWING

Reinforcement Learning Conference (RLC)	2025, 2026
European Workshop on Reinforcement Learning (EWRL)	2024