Scarllette Ellis

PhD Researcher - Reinforcement Learning (she/her)

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Research Interests

Reinforcement learning, **temporal abstraction**, **skill discovery**, **graph theory**, and **information theory**. My research focuses on how AI can autonomously learn **human-like** skills, and how AI performs in tabletop games that simulate **real-world problems**.

Education

Doctor of Philosophy in Computer Science   Oct 2023 - Oct 2027
University of Bath, UK   (expected)
Supervisors: Professor Özgür Şimşek, Professor Guy McCusker

MRes in Accountable, Responsable, and Transparent AI   Oct 2023-Oct 2024
University of Bath, UK
Supervisors: Professor Özgür Şimşek, Professor Guy McCusker
Dissertation: *Unifying Graph and Information Skill Discovery in Reinforcement Learning*

Masters in Mathematics and Computer Science   Sep 2019 - Jul 2023
University of Bath, UK
Grade: 1st (Hons)
Masters Dissertation: *Using Information and Graph Theory for Hierarchical Skill Discovery in Reinforcement Learning*
Undergraduate Dissertation: *Reinforcement Learning in the Board Game Pandemic*

Teaching and Supervision

Teaching Assistant   Sep 2022 - Present
University of Bath, UK
Teaching:

- Reinforcement Learning (Undergraduate & Masters Level)
- Bayesian Machine Learning (Masters Level)
- Artificial Intelligence (Undergraduate Level)

Responsibilities:

- Planning and delivering tutorials for undergraduate and postgraduate students.
- Marking coursework and providing feedback to students.
- Writing, running, and debugging automarking code.

Dissertation Supervision   Sep 2024-Present
University of Bath, UK

- Marking of student work and providing feedback on their writing.
- Helping students solve technical problems.

Skills

Conceptual: Mathematics, linear algebra, machine learning
Programming: Python, Jax, NumPy, Matplotlib, LaTeX
Personal: Communicating complex concepts, delivering talks, managing students

Work Experience

Automarking Internship Jun 2023–Sept 2023
University of Bath, UK

- Investigated the current state of automarking within the University of Bath Computer Science Department.
- Conducted interviews on how automarking was being used by lecturers.
- Delivered a seminar on how automarking is being used and gave advice on how to best use it, and the potential problems it has.

Lab Intern - Bath Reinforcement Learning Lab Jun 2022–Sep 2022
University of Bath, UK

- Investigating hierarchical reinforcement learning methods.
- Contributing to internal talks and paper discussions within the lab.

Head of TTRPGs - Tabletop Gaming Society Sep 2020-Jun 2021
University of Bath, UK

- Organising and running frequent society events.
- Running regular Dungeons & Dragons games.

Student Ambassador Sep 2020–Jun 2023
University of Bath, UK

- Providing university campus tours to prospective students.
- Giving advice on student life and insights on studying at university.

Barista - Costa Coffee Aug 2018-Jan 2020
Odeon Bridgend, UK

- Brewing delicious and consistent coffee during busy times.
- Talking with customers to create a warm and welcoming atmosphere.
- Communicating with difficult customers in a friendly but assertive manner.

Talks and Events

Being Prepared: Creating Multi-Level Skill Hierarchies using Graph and Information Theory Oct 2024
University of Bath Centre for Mathematics and Algorithms for Data

The Current State and Best Practices for University Automarking Sep 2023
University of Bath Lecturer Training Day

Charity Dungeons and Dragons Live Stream Apr 2021
Off the Record Bath