

Sophia Jones

PhD Candidate – Reinforcement Learning

✉ sj2073@bath.ac.uk

🌐 s0phia-.github.io/

🔗 [s0phia-](#)

Education

PhD in Accountable, Responsible, & Transparent AI

Sept 2021 - Present

University of Bath

- Researching reinforcement learning with graph based methods in the UKRI CDT for Accountable, Responsible, and Transparent AI, under the supervision of Prof Özgür Şimşek.
- My research deconstructs reinforcement learning policies into subtasks. For example, a policy for making tea might be decomposed into the steps: boil water; place a teabag in a cup; pour water over the teabag. My research has two aims: the first is to deconstruct existing policies into subtasks to provide an explanation of how the overall policy will behave, and the second is to extract useful subtasks that might be transferred to new tasks.
- Achieved a distinction in the integrated MRes year.
- Organise and host a popular reading group for the AI and ML department.

MSc Computer Science (Distinction)

Sept 2017 - Sept 2018

University of Edinburgh

- Studied modules relating to AI and theoretical computer science.
- Dissertation judged outstanding. Contributed novel research in the field of randomised algorithms on graphs. Available online [here](#).

MSc Mathematics (Merit)

Sept 2015 - Sept 2016

University of Leeds

- Studied courses in pure mathematics and statistics.

BSc Mathematics with Finance (First Class)

Sept 2012 - July 2015

University of Brighton

- Won the Deb Bose Prize for Best Mathematical Dissertation.
- Elected representative for students on my course.

Work Experience

Senior Operations Research Scientist

May 2019 - Aug 2021

Wayfair, Berlin

Selected projects:

- Created a forecasting system to estimate the optimal delivery fleet size, achieving over 90% accuracy. Development included interviewing stakeholders, feature engineering, and modelling on a small dataset.
- My team and I developed a novel algorithm using routing heuristics to find geographically optimal locations for delivery hubs.

Credit Risk Analyst

April - Sept 2017

Lloyds Banking Group, Leeds

Developed models to predict the total loss the bank may incur due to customers defaulting on mortgage payments.

Explainable AI consultant

Aug 2023

Simply Rational, Berlin

Consulted on an explainable credit risk prediction project.

Teaching Experience

Tutoring

- Reinforcement Learning (University of Bath)
- Mathematics for Computation (University of Bath)
- Cryptography (University of Bath)
- Discrete Mathematics and Mathematical Reasoning (University of Edinburgh)

Volunteering

- Led a Data Science with Python course for the charity Code Your Dreams

Course co-leader

- Teaching R Programming for analytics to 50+ other employees (Wayfair)

MSc Supervision

- Comparison of Handcrafted and Autonomously Learned Hierarchical Reinforcement Learning Agents in Tetris (University of Bath)
- Using Curriculum Learning Techniques with Deep Reinforcement Learning in Tetris (University of Bath)
- Reinforcement Learning for Tetris using Options (University of Bath)

Awards

- Deb Bose Prize for Best Mathematical Dissertation (2015)

Skills

- Regular Use: Python, PyTorch, NumPy, Matplotlib, LaTeX
- Past professional use: Python, R, SQL
- University Modules: MATLAB, Java, ROS