



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Multi-agent Reinforcement Learning

Faculty of Engineering and Physical Sciences



Salary: Grade 7 (£34,304 – £40,927 p.a.) Due to funding restrictions, an appointment will not be made higher than £36,382 p.a.

Reference: EPSCP1099

Closing date: Thursday 23 June 2022

Fixed-term for 2.5 years

We will consider flexible working arrangements

Research Fellow in Multi-agent Reinforcement Learning, School of Computing.

Are you eager to harvest human-machine collective intelligence to make cities more sustainable and democratic? Are you fascinated to explore distributed AI, federated and active reinforcement learning approaches to optimize the allocation and management of common pool resources in Smart Cities?

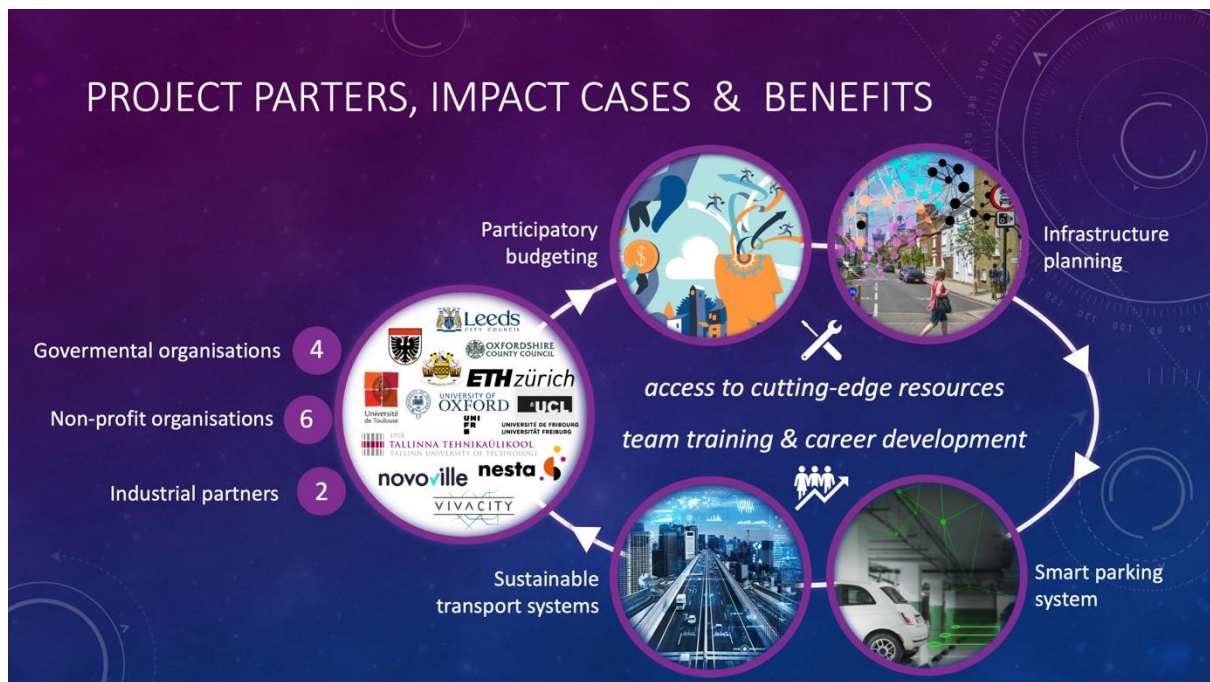
This is an opportunity to be part of a creative research team working on a new ambitious research programme with several collaboration, training and career development opportunities in industry, cities, and world-leading academic institutes in the UK and Europe. The Distributed and Intelligent Social Computing lab at the University of Leeds will run this unique programme with the aim to empower citizens' participation in governing common pool resources in Smart Cities such as smart transport, parking and energy systems.

The successful candidate will publish high-quality research on the broader area of multi-agent reinforcement learning, design and perform experiments in collaboration with partners and collaborate with other researchers in an inter-disciplinary team.

The research programme is designed to offer exceptional access to resources, training and career development opportunities including:

- Access to a new laboratory space in the new [Sir William Henry Bragg Building](#) of School of Computing and access to [Virtuocity](#), an immersive, “human in the loop”, simulation and visualisation facility.
- A national and an international network of partners that will support the research programme with access to novel real-world data, training and career development opportunities via funded visits and secondments as well as support for field test studies. Partners include among others: the Innovation Hub of Oxfordshire County Council, Novoville, Vivacity, the Urban Traffic Control system of Leeds city, Nesta as well as partners in Switzerland, France and Estonia.
- Novel training programmes at the University of Leeds including opportunities for enhancing interdisciplinary research via the [Crucible programme](#) or pathways to commercialization and business engagement via the [Michael Beverley Innovation Fellowship](#).





What does the role entail?

As a Research Fellow, your main duties will include:

- Generating and pursuing independent and original research ideas within the broader area of multi-agent reinforcement learning;
- Developing new research objectives and shaping the research programme both in short and long term, including preparing proposals for funding in collaboration with colleagues.
- Writing software code, documentation, performing experiments with software and humans, collecting data for analysis;
- Preparing papers for publication in leading international journals and disseminating research results through conferences;
- Working both independently and also as part of an interdisciplinary team of researchers, engaging in training and knowledge-transfer activities where appropriate and feasible;
- Participating and contributing to local, online and remote project meetings, including the organisation and preparation of workshops and hackathons;
- Assisting in the supervision of MSc and PhD students in areas relevant to the project;



- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow, you will have:

- A PhD (or have submitted your thesis before taking up the role) in Computer Science, Electrical Engineering, or a closely allied discipline;
- Fundamental knowledge and research experience in one or more of the following areas: reinforcement/federated learning, multi-agent systems, decision-support systems, machine learning, optimization algorithms and distributed systems;
- Programming skills for simulating, prototyping, deploying, testing and evaluating multi-agent systems and learning algorithms, e.g. Java, Python or C++, as well as UNIX and shell scripting skills including experience in system deployments (virtualization technologies);
- Affinity or interest in working in an inter-disciplinary scientific context together with other scientists, industrial partners and policy-makers;
- Demonstratable research ambition, drive for impact, commitment to research quality, independence and resilience to tackle research challenges;
- A proven track record of peer-reviewed publications in high-quality journals and conferences;
- Good time management and planning skills, with the ability to prioritise and meet deadlines;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a team.

You may also have:

- Research experience on the interplay of human-machine collective intelligence, including experimentation with human-machine interactions and/or decision-support systems in laboratory environments and field tests;
- Knowledge on incentive mechanisms, mechanism design and/or game theory;



- Domain knowledge, experience or interest in any of the applications of: mobility, (multi-modal) transport, parking, voting systems, participatory budgeting, energy.

How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by 23.59 (UK time) on the advertised [closing date](#).

Contact information

To explore the post further or for any queries you may have, please contact:

[Dr. Evangelos Pournaras](#), Associate Professor

Tel: +44 (0)113 343 5447

Email: E.Pournaras@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering and Physical Sciences](#) and the [School of Computing](#).

A diverse workforce

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN [Silver](#) Award from the Equality Challenge Unit, the national body



that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

Working at Leeds

Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our [Working at Leeds](#) information page.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

