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| Job title | Postdoctoral Research Fellow | Job family and level | Research and Teaching Level 4 |
| School/ Department | School of Computer Science | Location | Jubilee Campus |

Purpose of role

The primary purpose of this role is to conduct research into agent-based systems in support of the US Office of Naval Research project *Normative Cooperation among Autonomous Agents*.

The ability of autonomous agents to cooperate is becoming a critical issue in a world in which transport, distribution and manufacture are increasingly carried out by intelligent machines. Truly autonomous agents can be envisaged as entities that are charged with particular objectives and equipped to plan and carry out their assigned tasks without needing to communicate with a supervisor or with other agents. Agents are able to observe one another and their environment and only need agreed conventions or norms in order to achieve useful levels of cooperation. The primary goal of the project is to develop an approach to learning a system of conventions or norms which allow heterogeneous autonomous agents to cooperate without needing to communicate or to share predefined interfaces and protocols.

| | Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role) | % time per year |
|---|---|------------------------|
| 1 | <ul style="list-style-type: none"> Develop, implement and evaluate reinforcement learning-based approaches to multi-agent cooperation | 70% |
| 2 | <ul style="list-style-type: none"> Liaise with project partners (ONRG, DSTL, Montvieux Ltd) to ensure effective integration of the approaches developed with their Multi-Agent Reinforcement Learning (MARL) environment | 10% |
| 3 | <ul style="list-style-type: none"> Attend and contribute to project meetings, conferences etc. as required by the role | 10% |
| 4 | <ul style="list-style-type: none"> Prepare and disseminate results in appropriate publications and conference presentations | 10% |

Person specification

| | Essential | Desirable |
|--|---|--|
| Skills | <ul style="list-style-type: none"> ▪ Strong programming skills ▪ Effective communication skills ▪ Ability to work both alone and within a team | |
| Knowledge and experience | <ul style="list-style-type: none"> ▪ Excellent background in reinforcement learning and/or multi-agent systems | <ul style="list-style-type: none"> ▪ Understanding and experience of reinforcement learning toolkits ▪ Familiarity with Reward Machines ▪ Experience of and willingness to work within academic/industrial collaborations |
| Qualifications, certification and training (relevant to role) | <ul style="list-style-type: none"> ▪ PhD in Computer Science or a related area relevant to autonomous systems ▪ BSc in Computer Science or related discipline | |



As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those whose protected characteristics under the Equality Act 2010, are not well-represented in our current staff body.



The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
- Taking ownership** Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
- Forward thinking** Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
- Professional pride** Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
- Always inclusive** Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others

