JOB DESCRIPTION

Vacancy Ref: A2991

<table>
<thead>
<tr>
<th>Job Title:</th>
<th>Senior Research Associate (Emergent Systems)</th>
<th>Present Grade: 7</th>
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</thead>
<tbody>
<tr>
<td>Department/College:</td>
<td>School of Computing and Communications</td>
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<tr>
<td>Directly responsible to:</td>
<td>Dr Barry Porter</td>
<td></td>
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<tr>
<td>Supervisory responsibility for:</td>
<td>None</td>
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</tbody>
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**Other contacts**

**Internal:**
Staff and Students at the University; colleagues in the School of Computing and Communications

**External:**
International collaborators

**Major Duties:**

1. Becoming familiar with the state-of-the-art research in distributed reinforcement learning, and in genetic improvement for real-time systems
2. Developing a novel distributed learning algorithm which scales well to hundreds of nodes, converges with high probability on a global reward, and can deal with very large search spaces across the system
3. Implementing the above solution and performing experiments to compare it against other approaches to demonstrate the range of design points and their impact on learning convergence
4. Developing a novel approach to self-improving code for real-time systems, able to synthesise new variations of existing components that are better suited to a particular deployment environment
5. Implementing the above solution and performing a suitable range of experiments to demonstrate its properties and compare against the state of the art
6. Participation in national and international conferences and workshops to present the results of the project to a wider audience and to learn about current advances in the field.
7. Take a leading role in the scoping, planning and writing of conference and journal papers for publication of project findings.
8. Take a leading role in identifying funding opportunities and developing project proposals for future funding based on the research area and results of this project
9. Developing new research directions based on the above work, and carrying those directions through to successful new publications
10. Any other duties appropriate to the grade, as directed by the Principal Investigator or his representative.