CANDIDATE BRIEF

Research Fellow in Bioinspired Control for Autonomous Systems in City Infrastructure, Faculty of Engineering

Salary: Grade 7 (£32,004– £38,183)

Reference: ENGCP1043

Fixed-term for 24 months

Research Fellow in Bioinspired Control for Autonomous Systems in City Infrastructure
School of Computing

Are you an experienced and ambitious researcher looking for your next challenge? Do you have a background in bioinspired control? Do you want to further your career in one of the UK's leading research intensive Universities?

The University of Leeds has been awarded a substantial EPSRC grant to explore the use of robots and autonomous systems in city infrastructure. The 5-year project commenced on 4 January 2016. The team is formed of a consortium of the Universities of Leeds (lead), Birmingham, UCL and Southampton.

The research you will conduct is two-fold:

1) to design and test algorithms for navigation and task performance of individual robots in physically realistic 3D simulation environments; to test selected algorithms in physical prototypes and realistic environments;

2) to design and test algorithms for collaborative, centralised or distributed task performance in physically realistic simulation environments and to test selected algorithms in physical prototypes.

Both of the above will include fundamental research into and experimentation with selected reactive and deliberative strategies, and where possible, incorporating bioinspired elements (for sensing, actuation, decision making learning and/or optimisation). A workflow is envisioned in which the choice of robot design (embodiment and mechanics, sensors and actuators) will affect the control algorithm and vice versa.

Holding a PhD in Computer Science or a closely allied discipline of physics or engineering, you will have an enthusiastic, proactive attitude to your research and make a positive contribution to the multidisciplinary team of researchers working on this project.

What does the role entail?

As a Research Fellow, your main duties will include:
- Carrying out internationally leading research in simulation robotics, conventional and bioinspired control and collective behaviour;

- Contributing to the technical development and quality monitoring of the project;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work;
- Communicating or presenting research results through publication or other recognised forms of output;
- Preparing papers for publication in leading international journals and independently writing reports;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

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 in Computer Science or a closely allied discipline of physics or engineering;
- Relevant and deep knowledge and experience in computational and simulation modelling, including physical simulations;
- Relevant experience in the design, implementation and testing of control algorithms, either in engineering or in the context of computational modelling;
- Familiarity with adaptive control and biologically inspired methods;
- Working knowledge of Machine Learning;
- Strong programming skills and relevant practical experience to include at least two of Matlab, python, java, or C++;

- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure;
- Excellent written and verbal communication skills including presentation skills;
- Proven ability to manage competing demands effectively, responsibly and without close support;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

You may also have:
- Knowledge and experience of robotics (including ROS), and in particular robotic simulations;
- Knowledge and experience in self-organisation, self-assembly and control in a variety of biological or bioinspired systems;
- Willingness and ability to undertake limited teaching duties in areas of expertise (including occasional lectures, project supervision etc.).

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:

Professor Netta Cohen, **School of Computing**
Tel: +44 (0)113 343 6789
Email: n.cohen@leeds.ac.uk

Professor Anthony Cohn, **School of Computing**
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Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the Faculty of Engineering and the School of Computing.

A diverse workforce

The Faculty of Engineering is 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's 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