

Candidate Brief

Post-Doctoral Research Assistant

Reference: R180111

Salary: Grade 8, £32,548 to £38,833
per annum

Contract Type: Fixed Term (until 1
May 2021)

Basis: Full Time

Closing Date: 23.59 hours BST on
Sunday 13 May 2018

Interview Date: To be confirmed

EXCELLENT
DIFFERENT
DISTINCTIVE
ASTON



Job description

The post holder will be funded by the Leverhulme Trust. The post holder will be involved in the theoretical development for a cutting-edge research project entitled “Harmonisation of Behavioural Dynamics of Quasi-Independent Agents of Limited Information”. The increasing complexity of current and future emergent systems formed by large ensembles of entities introduces more challenging attributes to the study of controlling collective behaviour including,

- ▶ The inherent nonlinearity and nonstationarity of their dynamical behaviour as a coupled stochastic system;
- ▶ The adaptive co-evolution of their structure naturally adapting to shifting environments.
- ▶ They are networks-of-networks, noisy, and characterised by high levels of uncertainty.
- ▶ They operate in a decentralized way

The project aims to develop a radically new framework for reliable, robust and responsive control to overcome these challenges of large scale and complex dynamics. The framework will be based on a hybrid decentralised architecture of mutually-interacting quasi-independent subsystems where some are influenced by control signals and others are consensually harmonised through self-organisation.

Main Duties/Responsibilities:

- ▶ To carry out research in line with the project plan implementing novel ideas and contributing to the planning of associated research tasks.
- ▶ To lead the delivery of reports associated with the assigned project.
- ▶ To write and maintain accurate records of the research being undertaken.
- ▶ To update continually the knowledge and understanding in the field or specialism.
- ▶ To contribute to publications of research outcomes in high impact journals and major international conferences.
- ▶ To communicate and present research results within the research group meetings, and at national and international meetings.
- ▶ Travel nationally and internationally to disseminate research output, get involved in all aspects of the project and plan future research proposals.
- ▶ To contribute to the generation, protection and exploitation of intellectual property.
- ▶ To actively contribute to research initiatives and collaborate with colleagues in and beyond the School as appropriate.
- ▶ To engage in training and professional development programmes in the University consistent with personal needs and aspirations.
- ▶ Fully support the development of further research proposals, contributing novel ideas, concepts and background material.
- ▶ To assist in liaison with academic and industrial collaborators.
- ▶ To assist in the supervision of PhD students and MSc research projects.
- ▶ To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

Additional responsibilities

- ▶ Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities to develop themselves and support the development of others.
- ▶ Ensure and promote the personal health, safety and wellbeing of staff and students.
- ▶ Carry out duties in a way which promotes fairness in all matters and which engenders trust.

- ▶ Promote equality of opportunity and support diversity and inclusion as well as working to support the University's environmental sustainability agenda and practices.

Person specification

	Essential	Method of assessment
Education and qualifications	A PhD in an area related to science as well as a first degree in a relevant branch of mathematics, physical sciences or control.	Application form
Experience	<p>Extensive advanced control theory expertise.</p> <p>Full knowledge of other related disciplines.</p> <p>Demonstrate previous work in the project area.</p> <p>Excellent writing, interpersonal and communication skills.</p>	Application form and interview
Aptitude and skills	<p>High level of skill and knowledge of:</p> <ul style="list-style-type: none"> • Control of nonlinear and dynamical systems. • Modelling of nonlinear and dynamical systems. • Probabilistic inference. • Systems' synchronisation. • Nonlinear optimisation methods <p>Creative problem solving.</p> <p>Demonstrable track record of commitment to team working.</p> <p>Good English language communication skills to relay work in spoken and written media.</p> <p>Highly motivated.</p>	<p>Application form and interview</p> <p>Interview</p> <p>Interview</p> <p>Application form and interview</p> <p>Interview</p>

	Desirable	Method of assessment
Experience	<p>Experience of :</p> <ul style="list-style-type: none"> • Probabilistic modelling and control design of nonlinear and complex systems. • Design of consensus algorithms • Distributed control, • Probabilistic message passing, • Design of multiple controllers for switched systems. • Optimisation of nonlinear dynamical systems. 	Application form and interview

	Desirable	Method of assessment
Aptitude and skills	<p>Demonstrated aptitude for writing collaborative research proposals.</p> <p>Record of coordination of scientific events, outreach programmes and/or scientific meetings.</p> <p>Record in participation in outreach.</p>	Application form and interview

How to apply

You can apply for this role online via our website www.aston.ac.uk/jobs. Applications should be submitted by 23.59pm on the advertised closing date. All applicants must complete an application form, along with your CV.

Any CV sent direct to the Recruitment Team and Recruiting Manager will not be accepted. If you require a manual application form then please contact the Recruitment Team via recruitment@aston.ac.uk.

Contact Information

Enquiries about the vacancy:

Name: Dr Randa Herzallah

Job Title: Senior Lecturer

Tel: 0121 204 3674

Email: r.herzallah@aston.ac.uk

Enquiries about the application process, shortlisting or interviews:

Recruitment Team via recruitment@aston.ac.uk or 0121 204 4306

Additional Information

Visit our website www.aston.ac.uk/hr for full details of our salary scales and benefits Aston University staff enjoy

Salary Scales: <http://www.aston.ac.uk/staff/hr/payroll-pensions-and-benefits/salary-scales/>

Benefits: <http://www.aston.ac.uk/staff/hr/payroll-pensions-and-benefits/>

Working at Birmingham: <http://www.aston.ac.uk/birmingham/city-living/>

Employment of Ex-Offenders: Under the Rehabilitation of Offenders Act 1974, a person with a criminal record is not required to disclose any spent convictions unless the positions they applying for is listed an exception under the act.

Eligibility to work in the UK: Candidates who are not citizens of the United Kingdom, or another EEA member country, should check their eligibility to enter or remain the UK in advance of making any job application via the UKVI website <https://www.gov.uk/browse/visas-immigration/work-visas>. Before applying you should ensure that you meet the requirements, including meeting the English language standards. If you do not meet the eligibility criteria, any application for a work visa would be unsuccessful

Equal Opportunities: Aston University promotes equality and diversity in all aspects of its work. We aim to ensure, through our admissions policies for students, and our staff recruitment and selection processes that we encourage applications from all groups represented in the wider community at a local, national and international level.

The University will endeavour not to discriminate unfairly or illegally, directly or indirectly, against student or potential students, staff or potential staff. This commitment applies to all functions of the University and to any stage of an individual's career.

An Equal Opportunities Monitoring Form is included within the application form.

Data Protection Act 1998: Your application will only be used to inform the selection process, unless you are successful, in which case it will form the basis of your personal record with the University which will be stored in manual and/or electronic files. Information in statistical form on present and former employees is given to appropriate outside bodies.

Data you provide on the Equal Opportunities Monitoring Form will be included in a general database, for statistical monitoring purposes, enabling the University to monitor the effectiveness of its Policy, Codes of Practice and Guidelines on Equal Opportunities in Employment. Individuals will not be identified by name.

