Department of Mathematical Sciences

Loughborough University

Research Associate

Project Title: Random Periodicity in Dynamics with Uncertainty

Job Ref: REQ180963

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Project Description

This is one of two fixed-term 36-month Research Associate appointments funded by the 5-year EPSRC Established Career Fellowship to Professor Huaizhong Zhao. The overall aim of the research is to create a random periodic model, to build a theory of periodic stochastic dynamics and to design a dynamics model under non-additive expectations. This particular project is to build a periodic time series model theory and implement the model to real world data. It lies at the intersection of stochastic analysis, dynamical systems, statistics and time series. The Research Associate will also write a software with numerical and machine learning techniques.

Job Description

Job Grade: Specialist and Supporting Academic, Grade 6

To build a periodic time series model: theory and implementation to real world data.

Job Duties:

- To rigorously establish a theory of periodic time series models for random periodic processes.
- To implement the theory to write a software.
- To apply the model to real world data.
- To carry out necessary proofs and computations.
- To contribute an overall theory of random periodicity of dynamics with uncertainty.
- To work on all aspects of the above project, to be prepared to study the relevant literature.
- Be responsible for conducting the day to day running of the project.
- To formulate detailed plans for the project based on broad guidance from the project team.
- To feed back to the project team on progress, to make recommendations for next steps.
- Write up regular progress reports and present outcomes to all Investigators and Collaborators.
- Travel to attend meetings and make presentations both within the project partners working group and external stakeholders.
- To support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To write research papers suitable for publication in high quality academic journals.
- To attend and contribute to conferences.
- To contribute to project promotion and public engagement events.
- Contribute ideas for new research and enterprise directions.
- Maintain confidentiality at all times and ensure that intellectual property (IPR) agreements are not violated.
- To assist the academic staff in the project team with the supervision of undergraduate MSc and PhD project work and day-to-day supervision and support of other researchers.
- Where appropriate, to deliver teaching, tutorial and laboratory sessions to students.
- Engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and those of the Department.

Points to Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to the Principle Investigator Prof Huaizhong Zhao.

Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Substantial experience of conducting research in the area of stochastic analysis, probability theory and time series.	1,3
	Knowledge of random dynamical system and ergodic theory.	1,3
	Proficiency in programming and statistics software (R).	1,3
	Experience of managing datasets.	1,3
	Experience of preparations for publishing research outcomes.	1,3
Skills and Abilities	Ability to publish in international journals.	1,3
	Oral communication skills sufficient to present material at international meetings.	3
	Ability to work as part of a team and to collaborate with others.	1,3
Training	Willingness to undertake further training as appropriate and to adopt new procedures as and when required.	3
Qualifications	A PhD degree or near the completion of a PhD degree in Mathematics or Statistics.	1,3
Other	Evidence of a good working knowledge of equal opportunities and understanding of diversity in the workplace.	1,3

Desirable Criteria

Area	Criteria	Stage
Experience	Experience in programming using Python.	1,3
Skills and Abilities	Ability and willingness to teach at undergraduate level.	3
	Ability and willingness to assist with MSc project supervisions.	3

Conditions of Service

The position is full-time and fixed-term for 36 months. Salary will be on Specialist and Supporting Academic Grade 6, £30,395 to £39,609 per annum, subject to an annual pay award, at a starting salary to be confirmed on offer of appointment. The position is available to start on 21st January 2019.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Grades 6 and above staff, details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available here

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements.
We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see http://www.lboro.ac.uk/services/hr/athena-swan/

Applications

The closing date for receipt of applications is **13 December 2018.**