

Research Associate in Theoretical Computer Science

REQ210564

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.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

Applications are invited for a post-doctoral research associate in theoretical computer science. This position is funded through the EPSRC New Investigator Award project *Foundations of the Finite Model Theory of Concatenation* with Dr Dominik Freydenberger (d.d.freydenberger@lboro.ac.uk).

FC, the finite model version of the theory of concatenation, is a new logic that combines the elegance and expressive power of word equations with the algorithmic properties of relational first-order logic (for details, see [arXiv:1912.06110](https://arxiv.org/abs/1912.06110)).

The main topics of the project are the efficient evaluation of FC-formulas; techniques for proving inexpressibility in fragments of FC; and the use of FC for information extraction, in particular in connection to document spanners.

The post would ideally suite a candidate with experience in one or more of the areas logic, database theory, formal language theory, combinatorics on words, or string algorithms.

Job Description

Job Grade: Specialist and Supporting Academic (Grade 6)

Job Purpose

To undertake research in the project *Foundations of the Finite Model Theory of Concatenation* with Dr Dominik Freydenberger.

Job Duties

- To carry out original research in theoretical computer science.
- To identify fragments of FC that can be evaluated efficiently and to create the corresponding algorithms ; to develop techniques for proving inexpressibility in FC; or to apply these to information extraction, in particular in connection to document spanners.
- Plan and carry out a work programme appropriate to the research activity
- Create publications and presentations that are of high quality, and to contribute to dissemination activities (such as publications in top conferences and journals).
- Contribute ideas for new research and enterprise directions
- Support the PI in identifying and involving relevant stakeholders that will benefit from the project results
- Engage in training programmes in the University, which are consistent with your needs and aspirations and those of the project team
- Undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post

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 Principal Investigator, Dr Dominik D. Freydenberger.

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 | The conducting of original research that can be, or has been published in leading international venues | 1,3 |
| | Research experience in theoretical computer science | 1,3 |
| Skills and abilities | Excellent written and oral communication skills | 1,3 |
| | Highly-motivated with the ability to set and meet deadlines appropriate to the progress of the project | 3 |
| | Excellent interpersonal and organisational skills | 1,3 |
| Training | Willingness to undertake appropriate further training and to adopt new procedures as and when required | 1,3 |
| Qualifications | To have a PhD in Computer Science or a closely related subject, or to be near completion | 1 |
| Other | Commitment to observing the University's Equal Opportunities policy at all times | 1,3 |

Desirable Criteria

| Area | Criteria | Stage |
|----------------------|---|-------|
| Experience | Research experience in logic, database theory, formal language theory, combinatorics on words, or string algorithms | 1,3 |
| Skills and abilities | Authoring original work in the highest quality refereed academic journals and conferences | 1,3 |

Conditions of Service

The position is full-time and fixed term until 30 June 2024. Salary will be on Specialist and Supporting Academic Grade 6 £30,942 to £40,322 per annum, at a starting salary to be confirmed on offer of appointment

The appointment will be subject to the University's normal Terms and Conditions of Employment for grade 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 at <http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html>.

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/>