



Job description

Post title and post number	Research Fellow - 43880
Department	School of Computer Science within the College of Engineering and Physical Sciences
Post	43880
Full-time/Part-time	Full-time
Duration of post	Fixed Term (12 Months)
Post is open to:	Internal and External Candidates
Grade	7
Salary	Starting salary is normally in the range £28,132 to £36,661. With potential progression once in post to £38,907 a year
Additional Information	Informal enquiries can be made to Professor Jonathan Rowe (Head of School) Tel: +44 (0)121 414 42985 or J.E.Rowe@cs.bham.ac.uk
Terms and conditions	Research and Analogous Staff (non-clinical)
Closing Date	17 August 2014

Job summary

To create and contribute to the creation of knowledge by undertaking a specified range of activities within the EU funded project "HIERATIC". In particular, to work on the development of theoretically-motivated algorithms for coarse-graining complex non-linear systems, such as multi-agent systems, and to use such algorithms in improving the state space reductions strategies in the simulation tool MASON and the probabilistic verification tool PRISM.

The central aim of the HIERATIC project is to develop a new framework for understanding complex systems as a multi-level hierarchy of sub-systems using non-linear decompositions. We will develop algorithms to enable the automatic decomposition of complex systems into components. This will allow us to produce efficient simulation and prediction tools for such systems.

Main duties

- To conduct research according to the HIERATIC work programme, including taking responsibility for associated deliverables.
- To develop research objectives and proposals for own or joint research, within the scope defined by the HIERATIC work programme, with assistance of a mentor if required
- To contribute to writing bids for future research funding
- To apply knowledge in a way which develops new intellectual understanding of complex stochastic systems, and practical algorithms for analysing them.
- To disseminate research findings for publication, research seminars etc
- To contribute to developing new analytical and algorithmic techniques and methods
- To undertake management/administration associated with the implementation of the work programme.
- To contribute to Departmental/School research-related activities and research-related administration
- To collect research data, by empirically testing software on example case studies.
- To present research outputs, including drafting academic publications or parts thereof, for example at seminars and as posters
- To provide guidance, as required, to support staff and any students who may be assisting with the research
- To deal with problems that may affect the achievement of research objectives and deadlines

Scope of the Role

- Work within specified research grants and projects and contribute to writing bids
- Operate within area of specialism
- Analyse and interpret research findings and results
- Travel to attend project meetings, visit other project members, and dissemination events
- Collaborate with other members of the project consortium

Skills and Experience

- First degree in Computer Science, Mathematics or related discipline and normally, a higher degree relevant to research area or equivalent qualifications
- High level analytical capability
- Strong programming skills.
- Ability to communicate complex information clearly
- Fluency in relevant models, techniques or methods and ability to contribute to developing new ones
- Ability to assess resource requirements and use resources effectively
- Understanding of and ability to contribute to broader management/administration processes

Planning and Organising

- Contribute to the planning and organising of the research programme and/or specific research project
- Co-ordinate own work with others to avoid conflict or duplication of effort

Decision Making

- Decide in consultation with the principal investigator as appropriate, on the most appropriate way of undertaking the specified research activities
- Decide in consultation with the principal investigator as appropriate how to analyse and interpret the data from the specified research activities
- Decide in consultation with the principal investigator as appropriate what knowledge to draw on and how to apply it to develop new intellectual understanding
- Contribute to deciding what information to include in a bid for research funding and how to present the bid to maximise the likelihood of securing the funding
- Decide in collaboration with co-authors which aspects of the research findings to include in a presentation or a publication and how to convey the findings.
- Give guidance, support and advice to students on research related work including PhD students and decide the most appropriate method of providing this supervision.

Internal/External Relationships

- Liaise with research staff and support staff on research-related matters
- Liaise with external collaborators on the research, where appropriate, especially the other members of the project consortium.
- Give presentations and/or contribute to presentations at national and/or international conferences
- Referee articles for peer-reviewed academic journals
- Maintain contact with (including membership of) appropriate professional bodies
- Liaise with the relevant external research community via seminars and conferences

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