Candidate Information

Position:	Research Fellow
School/Department:	School Office (Elect, Elect Eng & Comp Sci)
Reference:	23/110693
Closing Date:	Monday 20 March 2023
Salary:	£35,333 per annum
Anticipated Interview Date:	Monday 17 & Thursday 20 April 2023
Duration:	3 years

JOB PURPOSE:

To be a highly productive, ambitious, and collaborative member of the Advanced Research and Engineering centre (ARC) within Northern Ireland. ARC directly addresses the challenges of down-streaming innovative research into commercial applications by bringing together research and engineering expertise from PwC, University of Ulster, and Queen's University Belfast within one research centre. The Research Fellow will join this vibrant network of collaborators to drive future innovations in technology and enhance our capabilities in important research areas.

The Research Fellow will explore operable business processes over a complex network covering multiple data sources. Depending on the type of data, the complexity of the porting software, and the dependencies between the data, these data sources may have synchronous, asynchronous, or both characteristics. The business networks make decisions based on these inputs and are susceptible to error due to the data's multiple interconnections. As a result of the associated complexities and interdependence of the data points, several risky decision-making factors are frequently overlooked when a model of operations is so intricate. The Research Fellow will expand the understanding of the risk landscape and generate valid methods that can replace the existing clause approaches with more comprehensive and novel AI-assisted strategies that can dynamically adjust the criteria without affecting the system's accuracy and reduce the false positives in the risk flagging system.

MAJOR DUTIES:

1. To be actively involved in the research programme as directed by the line manager/project supervisor and focus on developing an enterprise-level solution for risk assessment in complex business networks backed by strong research on the subject-matter.
2. Carry-out research on synchronous and asynchronous automation for business networks and its assistive technologies and report on the findings in discussions with the project supervisor and any associated partners of the project.
3. Carry out routine administrative tasks associated with the research project/s to ensure that projects are completed on time.
4. Developing proof-of-concept wherever applicable to justify the research.
5. Carry out appropriate analysis and write up results of own work and lead a new direction as the project progresses.
6. Present regular progress reports on research to members of the research group or external audiences to disseminate and publicise research findings.
7. Use of road mapping/project development tools to share ongoing status updates.
8. Contribute to the production of research reports, publications, and proposals.
9. Any other duties that the programme supervisor may reasonably request.

ESSENTIAL CRITERIA:

1. 2.1 Honours Degree (or equivalent) in Applied Mathematics, Computer Science, Electronics, Electrical Engineering, or a closely related discipline.
2. Normally have or be about to obtain a PhD in Computer Science, Applied Mathematics, Electronics, Electrical Engineering, Physics.

3. Relevant experience to include:
   • At least 3 years research experience in at least one of the following: risk assessment, AI-modelling, business networks.
   • 1-3+ years of experience developing risk assessment systems.
   • Demonstrable experience of: - software development at the systems (preferably (but not limited to) C/C++/Python/Java/C#).
4. Experience of working effectively as part of a research team in the development and promotion of the research theme.
5. Strong publication record, commensurate with stage of career.
6. Ability to contribute to broader management and administrative processes.
7. Contribute to the School's outreach programme by links with industry, community groups etc.
8. Practical problem-solving skills, independence of thought and initiative.
9. Ability to assess and organise resources.
10. Ability to communicate complex information in English effectively in oral and written format to technical and non-technical audiences.
11. Ability to build relationships with a wide range of people and roles at different levels of seniority and to influence decision making.
12. Ability to manage self and prioritise workload.
13. A pro-active approach to work and team development.
14. Commitment to continuous professional development.
15. Ability to meet the mobility requirements of the post including the travel to project partners as required by the role.

DESIRABLE CRITERIA:

1. Strong background in risk assessment systems, synchronous and asynchronous process management.
2. Experience of the application of dashboards for multidisciplinary activities.
3. Experience of developing and testing novel algorithms.
4. Mathematical skills for conceptualisation, modelling, optimisation, and analysis of problems.