![Queen's University Belfast logo]

Candidate Information

Position: Research Fellow
School/Department: School of Electronics, Electrical Engineering and Computer Science
Reference: 23/111284
Closing Date: Thursday 5 October 2023
Salary: £37,841 - £45,148 per annum
Anticipated Interview Date: Friday 20 October 2023
Duration: Fixed Term 30 months, or available until 31/12/2026, whichever is sooner

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of the Advanced Research and Engineering centre within Northern Ireland. The Centre brings together expertise from PwC, University of Ulster and Queen's University Belfast.

The Research Fellow will join this vibrant network of collaborators assisting in the planning and delivery of the research activity specifically to develop experiments and prototypes at the frontier of artificial intelligence and natural language processing (NLP) research. The Research Fellow will lead the development of NLP methods for modelling unstructured text documenting commercial compliance data and aligning to specifications developed in conjunction with PwC. They will assess the models in the context of auditing the textual data (i.e. assessing data compliance) and investigate the utility of the models for automating complex compliance processes.

The post is a critical role, and as such, successful applicants will have responsibilities in independent research, supervision, planning, outreach and collaboration both internally and externally. You will need to engage with research topics and cover new domains quickly, build knowledge in working with the relevant data, develop expertise in relevant deep learning methods, and apply high standards to the research code and systems you develop.

MAJOR DUTIES:

1. Undertake research under supervision within the specific research project and as a member of the collaborative research team contribute to develop and evaluate NLP and deep learning models and apply knowledge of relevant research domains along with expert coding skills to platform and framework development projects.
2. Develop/apply scalable algorithms based on state-of-the-art machine learning methodologies and design and evaluate suitable natural language processing models and workflows.
3. Carry out analyses and critical evaluation, in order to interpret, explain and further improve model performance and utility.
4. Engage with the relevant research literature, in order to develop methodologies appropriate to the area of research across a range of platforms and facilities of the wider PwC partnership.
5. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team (as appropriate) on outputs.
6. In consultation with the project team, promote research milestones and outputs at national and international conferences and through social media (where applicable).
7. Carry out occasional educational supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Undertake supplementary duties relevant to the success of the project including administrative duties, presentation of regular progress reports and additional training and development activities as required.

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:
   • Relevant recent research experience in at least one of: intelligent systems, artificial intelligence, algorithms development.
   • Recent experience developing deep learning and/or NLP systems
   • Working effectively as part of a Research team in the development and promotion of research topics
4. Demonstrable knowledge of Python, and experience with Java, R, C#, or other relevant languages. Knowledge of deep learning or NLP frameworks and tools (e.g. PyTorch, huggingface, spaCy).
5. Demonstrable knowledge of typical algorithms and concepts used in machine learning and deep learning, to include both model architectures and model evaluation.
6. Strong publication record, commensurate with stage of career.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques.
8. Ability to contribute to broader management and administrative processes.
9. Contribute to the School's outreach programme by links with industry, community groups etc.
10. Practical problem solving skills, independence of thought and initiative.
11. Ability to communicate complex information in English effectively in oral and written format to technical and non-technical audiences.
12. Ability to build relationships with a wide range of people and roles at different levels of seniority and to influence decision making.
13. Ability to manage self and prioritise workload.
14. A pro-active approach to work and team development.
15. Commitment to continuous professional development.
16. 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 deep learning model development.
2. Experience of the application of AI algorithms and software in multidisciplinary activities.
3. Experience of developing and testing novel algorithms.