

Candidate Information

Position:	Research Fellow
School/Department:	School of Electronics, Electrical Engineering and Computer Science
Reference:	23/110692
Closing Date:	Monday 20 March 2023
Salary:	£35,333 per annum.
Anticipated Interview Date:	Monday 17 & Thursday 20 April 2023
Duration:	Fixed term for 3 years

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 and Document AI methods for modelling commercial document data and aligning to specifications developed in conjunction with PwC. The Research Fellow will assess the models in the context of auditing the textual data (e.g. assessing data compliance) and investigate the utility of the models for automating complex compliance processes and other common corporate workflows.

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, Document AI, 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 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.
9. 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.

ESSENTIAL CRITERIA:

1. 2.1 Honours Degree (or equivalent) in Applied Mathematics, Computer Science, Electronics, Electrical Engineering, or a closely related discipline.
2. Obtained or about to obtain a PhD in Computer Science, Applied Mathematics, Electronics, Electrical Engineering or Physics.
3. At least 3 years research experience in at least one of: intelligent systems, artificial intelligence, natural language processing, data science.
4. Demonstrated experience developing deep learning and/or NLP systems.

5. Knowledge of Python, and experience with at least one other programming language (Java, R, C# or similar).
6. Knowledge of deep learning or NLP frameworks and tools (e.g. PyTorch, huggingface, spaCy).
7. Have a working knowledge of typical algorithms and concepts used in machine learning and deep learning, to include both model architectures and model evaluation.
8. Strong publication record, commensurate with stage of career.
9. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques.
10. Ability to contribute to broader management and administrative processes.
11. Contribute to the School's outreach programme by links with industry, community groups etc.
12. Practical problem solving skills, independence of thought and initiative.
13. Ability to assess and organise resources.
14. Ability to communicate complex information in English effectively in oral and written format to technical and non-technical audiences.
15. Ability to build relationships with a wide range of people and roles at different levels of seniority and to influence decision making.
16. Ability to manage self and prioritise workload.
17. A pro-active approach to work and team development.
18. Commitment to continuous professional development.
19. 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.
4. Experience in multi-modal AI.
5. Experience in ML deployment.
6. Experience in data science and statistical methods for the analysis of data.