

Candidate Information

Position:	Research Fellow
School/Department:	School of Biological Sciences
Reference:	24/112091
Closing Date:	Monday 26 August 2024
Salary:	£39,922 per annum
Anticipated Interview Date:	Thursday 5 September 2024
Duration:	8 months or until 31 March 2025, whichever is soonest

JOB PURPOSE:

To be an active member of the research team assisting in the planning and delivery of the research related to the use of AI and machine learning algorithms over mass spectrometry based detection of fraud in the food supply chain.

MAJOR DUTIES:

1. Undertake, plan and deliver mass spectrometry based research activities that may include laboratory experiments (LC-MS/ICP-MS), sample analysis, method development, critical evaluation and interpretation of results, building databases, chemometric modelling, computer-based data analysis and evaluation or library research in consultation with the research supervisor.
2. Development of a machine learning model using the soyabean library at Queen's university to discriminate origin of samples and development of a rapid portable test. Utilisation of Machine Learning models developed as an input into generative AI chatbots for continuous learning improvement of chatbots.
3. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
4. Write up results of own work and contribute to the production of research reports, publications and proposals.
5. Assist in the preparation of funding proposals and applications to external bodies.
6. Carry out routine administrative duties as requested, e.g. arranging research group meetings, maintaining research group website.
7. Read academic papers, journals and textbooks to keep abreast of developments in the machine learning field.
8. Carry out any other duties designated by a line manager and which fall within the general ambit of the post.
9. Carry out occasional undergraduate supervision, training and lecturing duties under the direct guidance of a member of academic staff.
10. Carry out routine administrative tasks associated with the research project to ensure that the project is completed on time and within budget.

ESSENTIAL CRITERIA:

1. Have or be about to obtain* a relevant PhD (have passed the viva) related to bio-analytical chemistry or food sciences. (*must be obtained within 3 months of commencement of employment).
2. Significant and relevant experience working in an academic and/or industrial environment including:
 - Lab experiments and method developing for mass spectrometry (LC-MS/ICP-MS) analysis.
 - Conventional non-targeted/semi-targeted workflow for fingerprinting/profiling purposes.
 - Development of AI assisted assays to detect adulteration/contamination in foods.
3. At least 1 years' experience in the use of programming language based software e.g. R, Python or MATLAB for machine learning model generation.
4. Practical experience in the validation of analytical methods and application of machine learning algorithms in data analysis.
5. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established and new research programmes.
6. Ability to interact with research colleagues and support staff.

7. Ability to interview, analyse and communicate effectively.
8. Ability to build contacts and participate in internal and external networks.
9. Ability to assess and organise resources.
10. Demonstrable intellectual ability.

DESIRABLE CRITERIA:

1. PhD in machine learning/agri-food based research.
2. Experience in multiple mass spectrometry based techniques.
3. A publication record in peer reviewed journals and presentations /posters at international conferences commensurate with career stage and experience.
4. Evidence of experience in research projects.
5. Knowledge and interest of developing deep learning algorithms for data fusion for multi-omics approaches.
6. Involvement in successful interdisciplinary research teams.
7. An understanding of the agri-food industry.

ADDITIONAL INFORMATION:

Informal Enquiries to Katie Tyrrell(k.tyrrell@qub.ac.uk)