



<b>Job title</b>	Research Associate/Fellow in Bioinformatics and machine learning	<b>Job family and level</b>	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
<b>School/ Department</b>	School of Veterinary Medicine and Science	<b>Location</b>	Sutton Bonington campus

## Purpose of role and research project

This is an exciting MRC-JPIAMR funded project, titled FightAMR: Novel global One Health surveillance approach to fight AMR using Artificial Intelligence and big data mining. The research fellow will take a leading role in an EU-Africa research project, collaborating with Research Organisations, Academia, and Industry in South Africa, Switzerland, France, Italy and the UK. The aim of this research is to understand the emergence, spread and transmission of drug-resistant pathogens under the One Health concept, and to use this knowledge to develop an innovative AI-powered surveillance solution. Covering all the interconnected systems humans, animals, environment and food across EU and Africa. To this aim, we will use artificial intelligence, bioinformatics, next generation sequencing and microbiology. The successful candidate will work closely with an interdisciplinary team of academics at University of Nottingham. The role will include data analysis via machine learning, bioinformatics, sequencing and microbiology.

	<b>Main responsibilities</b> (Primary accountabilities and responsibilities expected to fulfil the role)	<b>% time per year</b>
1	To conduct research at the highest level in accordance with the aims and objectives of the project and produce useful outputs of impact that lead to peer-reviewed publications of international quality. Perform other data analysis and programming tasks as required	85%
2	To contribute to research supervision and training of undergraduates and postgraduates, and to contribute to the development of the research group	5%
3	To operate as an effective team player within the group and to be accountable to the line manager on the progress and daily running of the project.	5%
4	Undertake administrative and any other relevant tasks as reasonably requested by the head of group. To update professional skills as appropriate.	5%

Person specification

	<b>Essential</b>	<b>Desirable</b>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Expertise in machine learning and data mining methods and algorithms for processing heterogeneous, complex large-data, including sequencing, sensor and biological data.</li> <li>• In-depth expertise in bioinformatics, in particular applied to genome biology and sequence analysis (e.g. Whole genome sequencing (WGS) analysis and shotgun metagenomic (MGS) analysis)</li> <li>• Expertise in Whole-genome and shotgun metagenomic sequencing</li> <li>• Programming skills in Python, Matlab, R or other equivalent</li> <li>• Evidence of publications in any of the listed fields</li> </ul>	<ul style="list-style-type: none"> <li>• Expertise in Oxford Nanopore Technology sequencing data analysis</li> <li>• Understanding of infections dynamics in particular for bacterial infections</li> <li>• Knowledge of the mechanisms underlying antimicrobial resistance</li> <li>• Expertise in Linux-based high performance computing environments; parallel computing; cloud-based environments.</li> <li>• Expertise in microbiology (culture, antimicrobial susceptibility testing, DNA extraction for sequencing)</li> </ul>
<b>Knowledge and experience</b>	<ul style="list-style-type: none"> <li>• Track record of successful and timely delivery of research projects.</li> <li>• Track record of publishing high quality publications</li> <li>• Experience of working in a collaborative research team</li> <li>• Experience of data driven-based research</li> <li>• Documented experience in the desirable skills listed above.</li> </ul>	<ul style="list-style-type: none"> <li>• Experience of working in a multidisciplinary team</li> <li>• Experience of collaboration within research projects dealing with antimicrobial resistance in humans, environment and animals, epidemiology of zoonotic infections.</li> <li>• Experience of leadership of research projects</li> <li>• Track record of interactions with research collaborators</li> </ul>
<b>Qualifications, certification and training (relevant to role)</b>	<ul style="list-style-type: none"> <li>• Award PhD (or very close to completion) in Computer Science, Bioinformatics, Biology, Computational Biology, or other relevant fields</li> </ul>	
<b>Statutory/legal requirements</b>	<ul style="list-style-type: none"> <li>• Satisfactory basic disclosure obtained from the Disclosure and Barring Service.</li> </ul>	



The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

## Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

## Key relationships with others

