University of Nottingham
UK | CHINA | MALAYSIA

ROLE PROFILE

Job Title: Research Associate/Fellow in Bioinformatics

School/Department: School of Veterinary Medicine and Science

Job Family and Level: Research & Teaching Level 4

Contract Status: Fixed-term from 1 May 2019 to 30 June 2021

Hours of Work: Full time: 36.25 hours

Reporting to: Dr Tania Dottorini

Location: Sutton Bonington Campus

Project:

FARM WATCH: Fight AbR with Machine learning and a Wide Array of sensing TeCHnologies

Main duties and responsibilities:

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	80%
2	To contribute to research supervision and training of undergraduates and postgraduates, and to contribute to the development of the research group and the School.	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	To contribute to administrative work related to the research group.	5%
5	To update professional skills as appropriate and relevant in support of research excellence.	5%

Knowledge, Skills, Qualifications & Experience:

	Essential	Desirable
Qualifications/ Education	• PhD (or very close to completion) in Computer Science, Computational Biology, Statistics, Mathematics, Epidemiology, Engineering, Physics or other relevant computational field	• Post-doctoral research experience
Skills/Training	• In-depth expertise in bioinformatics, in particular applied to genome biology and sequence analysis (e.g. genome assembly, sequence mapping, metagenomics, transcriptomics, and annotation) • Expertise in the analysis of large ‘omics datasets	• Expertise in epidemiological modeling • Understanding of infections dynamics in particular for bacterial infections • Knowledge of the mechanisms underlying antimicrobial resistance • Expertise in machine learning and data mining methods and algorithms for processing heterogeneous, complex

	• Strong programming skills in Python, Matlab, R or other equivalent • A broad understanding of database technologies • Evidence of publications in any of the listed fields	large-data, including sequencing, sensor and biological data. • Expertise in Linux-based high performance computing environments; parallel computing; cloud-based environments; client-server architectures for big data storage and processing
Experience	• Documented, previous experience in the essential skills listed above is required.	• Documented experience in the desirable skills listed above. • Experience of working in a multidisciplinary team • Experience of collaboration within research projects dealing with antimicrobial resistance in humans and animals, epidemiology of zoonotic infections.
Personal Attributes	• Ability to work to deadlines and prioritise tasks • Highly motivated, able to work independently, and a good team player. • Excellent written and verbal communication and presentation skills	• Interest in bacterial infections, antimicrobial resistance

Project Summary:

We are seeking an excellent research fellow to join an exciting new awarded project dealing with antimicrobial/antibacterial resistance (ABR) in humans and animals. The aim of this project is to understand the epidemiologic pathways underlying the insurgence and propagation of bacterial infection and antimicrobial resistance (AMR) in poultry (chicken) farming, with zoonotic transfer to the human population. We aim to improve diagnostic capabilities for the detection of infections and AMR to support treatment selection and to implement surveillance.

The successful candidate will work closely with an interdisciplinary and international team of academics and industrial partners. The project offers a unique combination of expertise in machine learning, statistical and mathematical modelling, bioinformatics, sequencing, cloud computing, microbiology, infection control, food safety, surveillance, epidemiology.

The successful applicant will use bioinformatics approaches (genome assembly, sequence mapping, metagenomics, transcriptomics and annotation) to identify and validate, together with experts in epidemiology, machine learning, mathematical modelling, bioinformatics and cloud computing, new diagnostics biomarkers to predict and detect bacterial infection, insurgence of antimicrobial resistance, and zoonotic transfer to humans.

The Applicant must have, or be very close to completing, a PhD in computational biology, computer science, mathematics, statistics, engineering, physics, or relevant fields. The candidate must have knowledge and experience in bioinformatics techniques and approaches, particularly related to genome biology and sequence analysis e.g. (genome assembly, sequence mapping, metagenomics, transcriptomics, and annotation). Experience in analysis of large ‘omic datasets. Research experience in applying such methods in antimicrobial resistance, metagenomics, bacterial infections would be desirable. Applicants must be able to demonstrate strong programming skills in Python, Matlab, R or other equivalent. Evidence of publications in any of the listed fields. The applicant must also be able to demonstrate research ambition through timely publication of research, coupled with commitment to the research project as part of their on-going career development. Excellent oral and written English language skills are essential.

Informal enquiries may be addressed to Dr Tania Dottorini: tania.dottorini@nottingham.ac.uk.Please note that applications sent directly to this Email address will not be accepted.