Post-Doctoral Researcher in Decision Support Systems Development
Level 1
School of Electronic Engineering
Faculty of Engineering and Computing
Fixed Term Contract up to 24 Months

Dublin City University (DCU) is a young, ambitious and vibrant university, with a mission 'to transform lives and societies through education, research, innovation and engagement'. Known as Ireland's 'University of Enterprise', DCU is a values-based institution, committed to the delivery of impact for the public good. DCU was named Sunday Times Irish University of the Year 2021.

DCU is based on three academic campuses in the Glasnevin-Drumcondra region of north Dublin. More than 18,000 students are enrolled across five faculties – Science and Health, DCU Business School, Computing and Engineering, Humanities and Social Sciences and DCU Institute of Education.

DCU is committed to excellence across all its activities. This is demonstrated by its world-class research initiatives, its cutting-edge approach to teaching and learning, its focus on delivering a transformative student experience, and its positive social and economic impact. The university continues to develop innovative programmes in collaboration with industry, such as the DCU Futures suite of degrees, which are designed to equip graduates with the skills and knowledge required in a rapidly evolving economy.

DCU's pursuit of excellence has led to its current ranking among the top 2% of universities globally. It is also one of the world's Top Young Universities (QS Top 100 Under 50, Times Higher Top 150 Under 100). In the Times Higher Education University Impact Rankings 2021, DCU ranked 23rd in the world for its approach to widening participation in higher education and its ongoing commitment to eradicating poverty, while it ranks 38th globally for its work in reducing inequality and 89th globally for gender equality.

The university is ranked 23rd in the world and first in Ireland for its graduate employment rate, according to the 2020 QS Graduate Employability Rankings. Over the past decade, DCU has been the leading Irish university in the area of technology transfer, as reflected by licensing of intellectual property.

School of Electronic Engineering
The DCU School of Electronic Engineering (*Scoil na hInnealtóireachta Leictreonaí DCU*) was established in the 1980s and continues to provide top level education to both undergraduate and postgraduate students. Recognised nationally and internationally for the outstanding quality of our courses, we focus on preparing students to pursue a broad range of careers in the Information and Communications Technology (ICT) sector in the areas of electronic, computer, and mechatronic engineering.

FOREWARN Project

FOREWARN will assess the occurrence, fate and behaviour of contaminants of emerging concern (CECs) and pathogens, develop machine-learning methods to model their transfer and behaviour and build a decision support system (DSS) for predicting risks and propose mitigation strategies. Using large datasets from previous research, FOREWARN will establish the basis of the relationships between the conditions of a particular aquatic environment and the emerging pollution caused by CECs and emerging pathogens. The project will consider 2 types of case studies:

1. In-silico case studies will be selected from previous results and datasets obtained in past or ongoing EU projects. Data will be used to develop the models and algorithms to feed and develop the DSS system to better understanding the sources, transport, degradation of CECs and pathogens and modelling their behaviour.
2. The adaptive DSS system will be refined and tested under real environmental conditions to achieve TRL5 in real environment case studies.

The Role

This position is for a postdoctoral researcher who will be recruited on a fixed term contract basis to be responsible for the development a set of machine learning models and software tools to support decision making regarding CECs and pathogens. This will include a set of predictive models that will use historical data to attempt to predict new emergence and impact of CECs and pathogens. An easy-to-use graphical user interface will also be developed to allow policy advisors and decision makers to interact with the software and visualize the predictions of the model.

Principle Duties and Responsibilities

Please see attached job description for principal duties and responsibilities of the role.

Minimum Criteria

- Applicants must have a PhD in the area of data analytics or machine learning or related discipline.
- A strong publication record of international peer-reviewed publication and presentation in top-tier conferences and journals.
- Experience with the Python programming language and machine learning frameworks (e.g. scikit-learn) and deep learning frameworks (e.g. PyTorch or TensorFlow).
- Experience with web development technologies like HTML, CSS, and Javascript.
- Excellent written and verbal communication and interpersonal skills.

In addition, it is desirable that the candidate has a subset of the following skills and experience:

- Experience with relational databases and knowledge of SQL.
- Experience in data visualization and web application development.

Candidates will be assessed on the following competencies:

Discipline knowledge and Research skills – Demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline.

Understanding the Research Environment – Demonstrates an awareness of the research environment (for example funding bodies) and the ability to contribute to grant applications.

Communicating Research – Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students

Managing & Leadership skills - Demonstrates the potential to manage a research project including the supervision of undergraduate students

Essential Training
Post holder will be required to undertake the following mandatory training: Orientation, GDPR, Research Integrity and Compliance. Other training may need to be undertaken when required.

Salary: Post Doc Researcher IUA Level 1 - €39,523 - € 45,609

*Appointment will be commensurate with qualifications and experience and will be made on the appropriate point of the IUA Researcher salary scale, in line with current Government pay policy.

Closing date: 15th April 2022

For more information on DCU and benefits, please visit Why work at DCU?

Informal Enquiries in relation to this role should be directed to:
Dr. Kevin McGuinness, School of Electronic Engineering, Dublin City University, Ireland.
Phone + 353 (0)1 7005133 Email: kevin.mcguinness@dcu.ie

Please do not send applications to this email address, instead apply as described below.

Application procedure:
Application forms are available from the DCU Current Vacancies at
http://www.dcu.ie/vacancies/current.shtml
Applications should be submitted by e-mail with your completed application form to hr.applications@dcu.ie

Please clearly state the role that you are applying for in your application and email subject line: Job Reference #RF1643 Postdoctoral Researcher Decision Support Systems Development.

Dublin City University is an equal opportunities employer. In line with the Employment Equality Acts 1998 – 2015, the University is committed to equality of treatment for all those who engage with its recruitment, selection and appointment processes. The University's Athena SWAN Bronze Award signifies the University's commitment to promoting gender equality and addressing any gender pay gaps. Information on a range of university policies aimed at creating a supportive and flexible work environment are available in the DCU Policy Starter Packs