



PhD position available
School of History and Geography
Dublin City University

Background

Dublin City University is a young, dynamic and ambitious university which is ranked among the top 100 Universities worldwide (QS World 'Top 100 under 50' 2018/2019). As a research-intensive university of enterprise with a focus on translating knowledge into benefits for society and the economy, DCU is focused on areas of recognised strength to address global societal challenges. Capabilities are integrated to ensure that science and research is aligned with national and international priorities in the areas of sustainability, information technology, health technologies, and societal resilience. DCU has a strong track record of collaborating with industry to provide innovative solutions and disruptive technologies. The School of History and Geography is a new school in the Faculty of Humanities and Social Science and has made a significant contribution to the expanding research profile of the Faculty.

The Project

The Habitat mapping, assessment and monitoring with high resolution imagery (iHabiMap) project is a 48-month multi-disciplinary collaboration between Dublin City University and two industry partners: Botanical, Environmental and Conservation (BEC) Consultants and Orbas Consulting.

Ireland's natural capital provides important ecosystem services including climate regulation, biodiversity and water regulation. However, there is uncertainty around the condition of many habitats. The increased pressure from agriculture (particularly dairy) is leading to a rapid decline in natural grasslands. Climate and precipitation changes as well as anthropogenic influences (peat draining and cutting) are impacting on upland areas particularly west of the Shannon River. These influences are also impacting on coastal areas particularly through sea level rise and increased storminess. Ongoing mapping, assessment and monitoring of these habitats and ecosystems is essential to ensure that detrimental human influences are halted particularly in Special Areas of Conservation (SAC) and to identify hotspots of change. iHabiMap will use a variety of Earth Observation sensors; develop and apply machine learning techniques to automatically extract domain relevant information from the sensor data to enable rapid and large- scale mapping and monitoring of habitats across Ireland.

We are looking for a highly motivated PhD student to work on this interdisciplinary four-year project funded by the Environmental Protection Agency of Ireland. The candidate will be embedded in the DCU School of History and Geography and will be an integral part of the iHabiMap team. The PhD candidate is expected to: (i) work in collaboration with the entire iHabiMap team; (ii) analyse Earth Observation data and (iii) develop analytical approaches to determine if UAV imagery and machine learning can effectively map, assess and monitor a range of Annex I habitats including peatland, grassland and sand dune systems.

Consideration will be given to candidates possessing (i) excellent English oral and written communication skills, (ii) a GIS and remote sensing background with experience in a coding language (preferably python), (iii) a masters in geospatial analysis, and (iv) fulfil the requirements to enrol in the PhD program at the Dublin City University.

	Essential	Desirable
Qualifications	<ul style="list-style-type: none"> • Candidates must have an honours Level 8 degree in geography or environmental science with GIS and Remote sensing. Or an honours Level 8 degree in a related discipline with a geospatial component. 	<ul style="list-style-type: none"> • A postgraduate degree in geography with remote sensing, GIS and computer programming experience. • A background in the environmental sciences
Skills	<ul style="list-style-type: none"> • Good communication and writing skills. • Familiarity with Geospatial software (including ArcGIS and Envi or similar). • Good time management skills. • Aptitude for multidisciplinary research approaches 	<ul style="list-style-type: none"> • Optical image processing • Field-based remote sensing • Experience in image processing using a coding language (ideally Python) • Experience in the use of machine learning algorithms in image analysis • Computer programming skills (preferably python) and machine learning skills • Fieldwork skills
Knowledge	<ul style="list-style-type: none"> • Background in geospatial analysis 	<ul style="list-style-type: none"> • Familiarity with peatland environments
Behavioural Competencies	<ul style="list-style-type: none"> • Ability to work as part of a team, including collaboration with other disciplines • Strives for high quality of work and demonstrates commitment to the Programme. • Ability to communicate effectively to enable knowledge and technology transfer. 	

The position is available from April 2019 onwards and is funded for a period of four years. The funding package includes a tax-free stipend of €18,500 per annum plus EU Tuition fees of €4,905 per annum. Applications should include: (i) a Curriculum vitae; (ii) a letter of motivation and (iii) names/email addresses of three references and should be addressed to Dr. John Connolly (john.b.connolly@dcu.ie)

Successful candidates will be required to apply formally to be admitted as PhD students by the University. They may also need to show proficiency in the English language.

DCU abides by the EU Code of Conduct for Research Integrity. All PhD students must attend the Research Integrity training programme which includes data protection and management training, as well as training around ethical considerations. The principle of equality is enshrined in the Universities Act 1997 and DCU is an Equal Opportunity Employer.