Research Centre	Insight SFI Research Centre for Data Analytics
Post Title	Postdoctoral Researcher (Nedap Project)
Post Level	IUA Level 1
Post Duration	Fixed Term Contract up to 12 months

Dublin City University

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.

The Insight SFI Research Centre for Data Analytics

The Insight SFI Research Centre for Data Analytics (http://www.Insight-centre.org) is an SFI funded Research Centre which brings together researchers from University College Dublin, NUI Galway, University College Cork, and Dublin City University, as well as other partner institutions, Trinity College Dublin (TCD), University of Limerick (UL), Maynooth University (MU) and Tyndall National Institute. It creates a critical mass of more than 400 researchers from Ireland's leading ICT clusters to carry out research on a new generation of data analytics technologies in a number of key application domain areas, such as Health and Human Performance, Smart Communities, Internet of Things, Enterprise and Services and Sustainability and Operations.

The €150m Centre is funded by Science Foundation Ireland and a wide range of industry and European Union partners. Insight's research focus encompasses a broad range of data analytics technologies from machine learning, decision analytics and social network analysis to linked data, recommender systems and the sensor web. Together, with more than 220 partner companies, Insight researchers are solving critical challenges in the areas of Connected Health and the Discovery Economy.

Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework (http://dcu.ie/hr/ResearchersFramework/index.shtml). This framework is designed to provide significant professional development opportunities to researchers and offer the best opportunities in terms of a wider career path.

DCU has a strong track record in attracting both Irish and European Union research funding under Horizon 2020 (and all previous Framework programmes), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment in which you can advance your academic career.

The Project

The project will focus on the automatic assessment of lameness in dairy cows from RGB and depth video captured in-situ on farms. An initial scoping project successfully demonstrated the feasibility of a computer vision based solution to automatic assessment of lameness in dairy cows. This project will extend the work towards the development of a commercially viable prototype product. To this end, it will investigate improving the performance of the previous lameness prediction model, both in terms of accuracy and computational efficiency, by using the additional gathered data that will be collected and annotated at the beginning of the project, and by improved modelling techniques. The overall goal is to create a prototype that is capable of predicting lameness on an autonomous edge device that can be easily deployed in-situ in real-world farm environments.

The Role

Insight wishes to recruit a Postdoctoral Researcher on a fixed term contract basis to facilitate the delivery of both industry-sponsored research projects and fundamental research in deep learning for computer vision.

Principal Duties and Responsibilities

Specific duties include:

- Conduct a programme of research in deep learning for computer vision, specifically focusing on topics like semi-supervised learning and learning under various constraints such as long tail distributions and label noise.
- Provide support and advice to PhD students working on similar topics.
- Produce top quality journal and conference publications, in collaboration with the PIs.
- Participate in Insight Centre activities, including industry showcases, annual reviews and industry and agency visits to the Insight labs.
- Carry out administrative work associated with the programme of research as necessary
- Other tasks relevant to successfully implementing the assigned research programme.
- Liaise with both external and internal stakeholders, including academics, undergraduate and postgraduate students, external supervisors and host placement schools.
- Preparation of project outputs, interim and final reports as required by the project schedule.
- Deliver research outputs according to project schedules.
- Other tasks relevant to successfully implementing the assigned research programme.
- Attend and present results at project progress meetings.

Qualifications, Skills and Experience Required

The ideal candidate must have a PhD in Computer Science, Engineering or a related discipline with strong software and programming skills and relevant experience in machine learning, deep learning, and computer vision.

Skills
- Excellent written and oral proficiency in English (essential).
- Excellent written and verbal communication and interpersonal skills.
- Proven ability to prioritize workload and work to strict deadlines.
- Ability to work in a team and to take responsibility to contribute to the overall success of the team.
- Strong problem solving abilities.
- Substantial experience with developing deep learning models using modern frameworks such as PyTorch.

Candidates will be assessed on the following competencies:

Discipline Knowledge and Research skills – Demonstrates the ability to design and/or implement a substantial programme of research including initiating and leading new research programmes (for example by using critical judgement and an understanding of new research methodologies).

Understanding the Research Environment – Demonstrates a thorough understanding of the research environment both nationally and internationally, the ability to secure significant research funding and where relevant the ability to apply for intellectual property rights and/or patents for their research.

Communicating Research – Demonstrates excellence in communicating their research nationally and internationally (for example by publishing in high quality peer reviewed journals of international standing and through invitation to participate in commercial research) and the

ability to deliver teaching based on their own research.

Managing and Leadership skills – Successfully leads and manages research programmes including the management and supervision of a small research team and the financial management of research programmes.

Essential Training

The post holder will be required to undertake the following mandatory compliance training: Orientation, Health and Safety, Research Integrity and Intellectual Property and Data Protection training. Other training may need to be undertaken when required.

Additional Information

The successful candidates will be offered opportunities for developing their own careers in a number of directions including support for conference/workshop travel, upskilling through Insight's continuous professional development in areas like research ethics and data privacy, student supervision and development and submission of their own research project proposals.

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