

Research Centre	Insight SFI Research Centre for Data Analytics
Post Title	Research Assistant in Microfluidics Fabrication, Systems Integration & Rapid Prototyping
Post Duration	Fixed Term Contract up to 11 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.

Role Profile

The Adaptive Sensors Group (ASG) is a large, multidisciplinary research unit hosted by the National Centre for Sensor Research (www.NCSR.ie), in state-of-the-art facilities situated on the campus of Dublin City University. Core funding for the ASG is provided by Science Foundation Ireland through the INSIGHT Centre (<https://www.insight-centre.org/insight-at-dcu>). The post is supported by NSF, DfE and SFI via the US-Ireland R&D partnership programme and is in collaboration with Queens University (NI) and Rensselaer Polytechnic Institute (US).

A Research Assistant position is available to work on the development of sensing platforms for remote environmental monitoring. Versions of these autonomous sensor systems have been extensively trialled in collaboration with partners in EU projects. This position is focused on the further development of these platforms, primarily focused on improving the microfluidics chip fabrication to reduce unit costs significantly while improving the platform functionality. The successful candidate will play a substantial role in the design and fabrication of fluidics units using emerging technologies like 3D printing, materials employed in the fabrication process, integration of optical and electronic components, as well as support for the characterisation and performance of prototypes in field deployments. While this project mainly deals with platforms for water quality monitoring, he/she will contribute to the group's overall research effort in autonomous instruments, including platforms for water analysis. He/she will join a multidisciplinary team that functions based on mutual support across a range of projects, drawing on combined team expertise in mechanical/electronic engineering, computer science, wireless communications, web database management, environmental science, materials science, and analytical chemistry.

Principal Duties and Responsibilities

The successful candidate will:

- Play a substantial role in supporting the engineering effort of the ASG

- Ensure that the project objectives are delivered, specifically, the delivery, characterisation and field deployment of functioning prototype instruments with new microfluidics units for monitoring nutrients and other important molecular markers of water quality.
- Work closely with pilot trial partners to install and maintain the operation of deployed platforms and to ensure data from deployments is remotely accessible via web databases in an appropriate format for their needs.
- Participate in meetings with the interested parties (e.g. end-users, external industry and academic partners) and assist in promoting the technology being brought to market (e.g. conferences and tradeshows).
- Attend, and contribute to, group meetings
- Maintain an up-to-date profile on the group website
- Participate in Insight Centre activities.
- Carry out administrative work associated with the programme of research as necessary
- Other tasks relevant to successfully implementing the assigned research programme.
- Participate in Insight Centre activities.

Qualifications, Skills and Experience Required

The successful candidate will have:

- A primary degree (NFQ Level 8) in mechanical/electronic or mechatronic engineering or related discipline.
- Candidates should have 1 year' work/postgraduate experience in which rapid prototyping played a significant element.
- Expertise in systems integration, 3D CAD/CAM design, and familiarity with fabrication techniques will be important.
- Experience in polymer handling, electronics and microcontroller programming is desirable.
- Some experience in environmental monitoring deployments would be an advantage.
- Excellent written and oral proficiency in English (essential).
- Excellent 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.

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

Undertaken when required. 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](#)