



Applications are invited from suitably qualified candidates for the following position:

<b>Research Centre</b>	Insight SFI Research Centre for Data Analytics
<b>Post title</b>	Research Assistant In Applied Machine Learning And Optimization For Shared E-Mobility System
<b>Post Level</b>	Level 1
<b>Post duration</b>	Fixed Term Contract up to 24 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.

As part of this role the researcher will be required to participate in the DCU Research Career Framework. This framework is designed to provide significant professional development opportunities to Researchers and offer the best opportunities in terms of a wider career path.

### **Background**

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.

### **The Project**

This is a two-year SFI funded project with a key research objective to address large-scale machine learning and optimization challenges in the context of shared e-mobility systems, including shared e-scooters, e-bikes, and e-cars. This project not only aims to investigate how data collected from these shared e-mobility tools can be effectively modelled, but also to provide novel solutions to optimally orchestrate these objects, by means of large-scale applied machine learning algorithms and mathematical optimization methods, to maximise personalised benefits for each commuter in daily lives in the mobility as a service ecosystem. Real world mobility data will be collected and accessed through the Smart DCU programme under the necessary approval and agreements.

### **The Role**

This position is for a research assistant researcher who will be recruited on a fixed term contract basis to be responsible for research design, model, tool and prototype development, performance evaluation and validation of the machine learning systems and the optimization strategies to be developed over the course of the project. A postdoctoral researcher who will also be recruited for the whole cycle of the project will be working closely with the full-time research assistant. Both researchers will collaborate deeply with the PI for the specified research tasks.

### **Principal Duties and Responsibilities**

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

### **Qualifications, Skills and Experience Required**

Applicants should have an undergraduate degree or master's degree in electronic engineering, mechatronic engineering, applied mathematics, computer science, or related discipline with good analytical and programming skills in mathematical modelling, data science and machine learning. In addition, it is desirable that the candidate has experience and interests in e-mobility systems.

- 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.
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- Proven programming skills in using MATLAB/Simulink and Python.
- Good knowledge of machine learning, deep learning, reinforcement learning techniques, packages, and frameworks.
- Previous experience in writing papers and publications (preferable).
- Strong research interests in shared e-mobility systems (preferable).

### **Essential Training**

The postholder will be required to undertake the following essential compliance training: Orientation, Health & Safety and Data Protection (GDPR). Other training may need to be undertaken when required.

**Salary Scale:** IUA Research Assistant Salary Scale - € 28,701 - €38,390

\*Appointment will be commensurate with qualifications and experience and in line with current Government pay policy

**Closing date: Wednesday, 14<sup>th</sup> December 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. Mingming Liu, Assistant Professor, Insight SFI Centre for Data Analytics, School of Electronic Engineering, Dublin City University.

Email: [mingming.liu@dcu.ie](mailto:mingming.liu@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 website at <https://www.dcu.ie/hr/vacancies-current-vacancies-external-applicants>

Applications should be submitted by e-mail with your completed application form to [hr.applications@dcu.ie](mailto:hr.applications@dcu.ie)

**Please clearly state the role that you are applying for in your application and email subject line: Job Ref #RF1771 Research Assistant in Applied Machine Learning and Optimization for Shared E-Mobility Systems.**

*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](#)*