<table>
<thead>
<tr>
<th>Research Centre</th>
<th>Insight SFI Research Centre for Data Analytics</th>
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<tbody>
<tr>
<td>Post Title</td>
<td>Research Fellow in Image understanding using machine learning</td>
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<tr>
<td>Level on Framework</td>
<td>Level 2</td>
</tr>
<tr>
<td>Post Duration</td>
<td>Fixed Term Contract up to 48 months</td>
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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. The role may include teaching duties to assist with module delivery.

**Insight SFI Research Centre for Data**

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 and Role
The project is a collaborative project between the Insight SFI Research Centre for Data Analytics and an industry partner which aims to solve problems in the area of Machine Learning and image understanding. The successful candidate will split their time between the Insight Centre, DCU and the industry partner. Prioritized research goals will be aligned with some of the following topics: advancements in image enhancement using ML, learning from limited training data, joint video and audio analytics using ML, low power ML and artificial intelligence algorithms on the edge, adversarial attacks on recognition systems, new approaches to visual saliency prediction and applications, among others.

Principle Duties and Responsibilities
Specific duties include but are not limited to:

• Take a lead role in managing a programme of research into machine learning and image understanding
• Identify and secure external sources of funding and identify new partnership opportunities.
• Manage and supervise a group of four PhD students working on similar topics.
• Oversee software and system development for the various PhD projects.
• Develop new models of research collaboration.
• To collect, collate and analyse research data.
• To maintain accurate project records and project confidentiality.
• Act as a liaison between the PIs, the Insight Centre and the industry partner.
• Produce top quality high impact journal and international peer-reviewed conference publications.
• Participate in Insight Centre activities, including industry showcases, annual reviews and industry and agency visits to the Insight labs.
• Engage in appropriate training and development opportunities as required by the PIs, the School or Research Centre, or the University.
• Manage and conduct administrative and management tasks associated with your programme of research and the requirements of the funder.

Mandatory 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.

Qualifications, Skills and Experience Required
This position is open to candidates who meet the following criteria:

• PhD in Computer Science, Engineering or a related discipline with strong software and programming skills and relevant experience in computer vision, deep learning, or collaborative filtering.
• A minimum of 4 years’ relevant postdoctoral research experience or equivalent at Level 1 of the Research Career Framework.
• Previous experience at the level of Research Fellow (or equivalent) is preferred

In addition, ideally the candidate should possess the following skills;

• Programming and software development: especially in Python and C/C++, and experience in numerical and scientific computing in Python or MATLAB.
• Mathematical skills: advanced linear algebra, probability and statistics, multivariate calculus, and mathematical optimization.
• Theoretical and applied machine learning: especially deep learning, and knowledge of unsupervised or semi-supervised methods in deep learning.
• Software frameworks for deep learning: e.g. PyTorch or Tensorflow
• Computer vision theory and algorithms.
• Various operating systems, especially GNU/Linux.

Mandatory Training

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Candidates will be assessed on the following competencies:

Discipline specific knowledge and Research Skills Demonstrates the ability to design and implement part of a programme of research (for example by using critical thinking and the application of relevant research methodologies)

Communicating Research Demonstrates the ability to communicate their research effectively to the research community and wider society (for example by publishing their research in high quality peer reviewed journals) and the ability to teach and tutor students

Managing and Leadership Skills Successfully manages research projects including the management and supervision of postgraduates and/or junior research staff

Understanding the Research Environment Demonstrates a thorough understanding of the research environment both nationally and internationally, and the ability to contribute substantially to grant applications