



**The Institute invites applications for the following position:
Masters Studentship (Full-time: 27 months)**

Position: Develop a Safety critical cybersecurity framework that identifies best practices and technologies to be used when developing a cybersecurity solution for connected safety-critical systems. Initial research will involve analysing the state of the art in medical device cybersecurity and identifying gaps, and then establishing what other factors need to be taken into consideration when applying this framework to the automotive industry

Dundalk Institute of Technology is a dynamic, world class Institute that has developed an international reputation in both basic and applied research through its Research Centres.

The Regulated Software Research Centre (RSRC) is within the School of Informatics and Creative Arts and is located in the Carroll's Building.

The RSRC (<https://www.dkit.ie/research/centres/regulated-software-research-centre>) has developed an international reputation for performing medical device software engineering.

The medical device (MD) industry has been identified, by the IDA, EI and SFI, as a key growth sector for the Irish economy. At present the Irish MD industry is still largely focused upon manufacturing. However, ICT forms a major part of the MD sector globally, and now significantly more organisations within Ireland are performing medical device software development.

Prof. Mc Caffery has a strong background in funded research which has supported the development of an Irish MD software industry, through providing a framework that assisted companies to develop MD software. However, this framework would be greatly enhanced if it included guidance in relation to performing automated testing that would enable traceability etc. to be achieved in an efficient and timely manner, whilst adhering to the relevant medical device standards for both safety and security.

Prof. Mc Caffery's research team at the RSRC have a very strong profile in the international medical device standards community having led the development of 4 international medical device software, medical device security and medical device risk management standards i.e. IEC 80002-3; IEC 80001-2-7; IEC 80001-2-8; and IEC 80001-2-9. The team also developed MDevSPICE which enables all medical device software standards to be assessed within an organization. The output of such an assessment provides MD software companies with a list of software development practices that they should

perform in order to achieve regulatory compliance. However, this does not detail “how” MD companies should perform automated security testing practices.

We therefore propose a postgraduate research project to develop an automated software security testing framework for achieving regulatory compliance. Central to the development of the automated software security testing framework will be collaborating with a test-bed company – Nova Leah that develops security risk management solutions for the medical device industry. Nova Leah are a multi-award winning Spin-out company from the Regulated Software Research Centre in DkIT.

The postgraduate researcher will benefit from the fact that Prof. Mc Caffery has previously supervised multiple Masters and PhD students to completion both in DkIT and the University of Limerick. Additionally, Nova Leah are the world’s leading provider of medical device cybersecurity risk management solutions.

The successful applicant will be registered as a full time postgraduate research student in the DCU-DkIT Graduate School. The Masters position will be located on the DkIT campus and the Masters Degree will be awarded by Dublin City University. On completion of this Masters, should the successful candidate wish to pursue a PhD, there may be possibility to do so, but this would be subject to obtaining new funding.

Funding

The successful candidate shall receive a postgraduate stipend of €16,000 per annum, plus fees and a contribution to their direct research project costs. The duration of this Masters studentship is 27 months. Terms and conditions will apply.

Application process

Please send a copy of your CV and a cover letter to aideen.gaynor@dkit.ie no later than **4.00 pm on October 20th 2021.**

Please use “**Masters Enterprise application**” in the subject title.

Applications received after this time will not be considered

Short listed candidates will be invited to interview.

Informal inquiries should be sent to;

fergal.mccaffery@dkit.ie or anita.finnegan@novaleah.com

Please note, canvassing will render an applicant ineligible.

Eligibility

Candidates should hold, or expect to hold a 1st or 2.1 honours degree (or equivalent) in a related discipline to the project of interest.

It is also a requirement that any applicant whose first language is other than English must have a certified English language proficiency of at least IELTS 6.5 or equivalent.

