

**Dundalk Institute of Technology invite applications for the following position:
PhD postgraduate Scholarship (Full-time: 36 months)**

Project overview

Title: Adversarial Methods to Mitigate Detrimental Algorithmic Bias.

Supervisor: Dr Roisin Loughran (DkIT) and Prof Fergal McCaffery (DkIT)

Position Reference: 01STEM2020

Keywords: Algorithmic Bias, Artificial Intelligence, Generative Adversarial Networks, Fairness

This project aims to implement a Generative Adversarial Network (GAN) in order to mitigate detrimental bias in the domain of public health screening.

Artificial Intelligence (AI) systems offer huge potential benefits within a range of critical safety systems and services such as healthcare provision. However, many researchers have warned of potential ethical issues from implementing these systems in such applications, in particular through the introduction of detrimental bias. The IEEE P7003 standard 'Algorithmic Bias Consideration', due to be published later in 2021, should ensure organisations do not unwittingly introduce discriminatory bias. This project will follow the guidelines set out in this standard to implement a Generative Adversarial Network (GAN) with the purpose of mitigating detrimental bias in the domain of public health screening. Two datasets will be used: a publicly available international dataset and a synthesised dataset representative of the Irish demographic. The GAN will be trained and evaluated on the international data to probe for weaknesses and potential biases in the model. Once this has been thoroughly explored, the model will be developed to encompass Irish data to predict how such systems could detrimentally affect algorithmic healthcare provision, before being implemented

Dundalk Institute of Technology

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. This PhD Scholarship is offered through the Regulated Software Research Centre, within the School of Informatics and Creative Arts at DkIT. The successful applicant will be registered as a full time postgraduate research student in the DCU-DkIT Graduate School. The PhD position will be located on the DkIT campus and the Degree will be awarded by Dublin City University.

Funding

This project is co-funded by the HEA Technological Universities Transformation Fund and DKIT.

The successful candidate shall receive a postgraduate stipend of €16,000 per annum, plus fees and a contribution to their direct research project costs up to a maximum of €5,000 per annum. The duration of this PhD studentship is 36 months. Terms and conditions will apply.

Eligibility

Eligibility Criteria:	Essential	Desirable
Qualifications	2:1 Honours Degree (or equivalent) in computer science, statistics or similar	Masters in data analytics, machine learning or applied computer science
Experience/knowledge		Masters in data analytics, machine learning or applied computer science

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.

Application process

Please send a copy of your CV and a 1-page cover letter to orla.lynch@dkit.ie no later than **4.00 pm on Wednesday 20th Oct 2021**. Applications received after this time will not be considered.

Please use the position reference **"01STEM2020"** in the subject title.

Short listed candidates will be invited to interview.

Informal inquiries should be sent to; Roisin.loughran@dkit.ie

Please note, canvassing will render an applicant ineligible.