

Queen's Doctoral Training Programme on Secure Connected Intelligent Design and Manufacturing

Title: DTP: Secure patient diagnosis using cloud-based artificial intelligence	
<p>This project is part of the Queen's Doctoral Training Programme in Secure Connected Intelligent Design and Manufacturing. Many of today's industrial approaches require transformative changes to ensure long term societal, economic and environmental resilience and sustainability. PhD projects in this programme explore the potential of emerging digital technologies, such as artificial intelligence, robotics, and the Internet of Things, to transform the way we design, manufacture and operate products and services.</p> <p>Project description: The goal of the project is to take chemiluminescent imaging data from patients (using traditional and next-generation CCD/CMOS detectors), encrypt these data and transfer them securely to a cloud-based server for image processing not possible on a conventional desk-top analyser. The cloud-based server will be programmed to statistically examine the data provided, and use artificial intelligence and machine learning to more accurately and efficiently diagnose patient ailments. Results will then be securely transferred back to the original machine, providing a much improved "time to first result", hence allowing for a more prompt and accurate patient diagnosis.</p>	
Key skills required for the post:	
<p>Key transferable skills that will be developed during the PhD: The programme offers a bespoke research and training programme that aims to develop students into cross-disciplinary, industry-conscious thinkers and leaders who will influence the roadmaps of future advanced manufacturing technologies and their applications. They will have a balanced understanding of ICT (security, communications and data analytics) in the context of their application to Advanced Manufacturing and High Value Design.</p>	
Lead supervisor:	Dr. David Jess (School of Mathematics and Physics), d.jess@qub.ac.uk
Other supervisor(s):	Prof. Mihalis Mathioudakis (School of Mathematics and Physics) Dr. Neil Mitchell (EEECs)
Guaranteed stipend:	<p>This is a 3.5 year funded Queen's DfE DTPs studentship with Training Grant, to commence on 1 October 2020 (N.B. stipend for 20/21 is not yet known, but is likely to exceed £15,000). The studentship covers fees and maintenance and is available for UK residents (see full eligibility criteria - nationality, residency, and academic qualification at: http://go.qub.ac.uk/dfeterms).</p> <p>When applying using the Queen's portal please ensure you include "DTP:" along with the project title.</p>
Conditional top-up available:	
<p>PhD students in the School have the opportunity to apply to be demonstrators on undergraduate modules. Compensation for this can amount to in excess of £2,400 per year.#</p>	

Queens University Belfast is a diverse and international institution which is strongly committed to equality and diversity, and to selection on merit. Currently women are under-represented in research positions in the School and accordingly applications from women are particularly welcome.