MSc Postgraduate Research Opportunity

MSc Project Title:	**Research fellowship: Internet-of-Medical-Things: Deployment and Cybersecurity**
Project Duration:	**24 months**
Organisation:	**Atlantic Technological University (ATU)**
Location:	**ATU Mayo Campus (Castlebar)**
Stipend:	**€16,000 per annum**
Responsible to:	**Seamus Dowling, Carmel Heaney, Michael Schukat**

Funding: ATU - Programme for the Integration of Research and Teaching (PIRATE)

Description:

This 2-year funded Masters Research Fellowship presents an exciting opportunity to conduct meaningful and career-enhancing research. The successful applicant will embark on a MSc by research in the area of cybersecurity in the context of the Internet-of Medical-Things. Cybersecurity is a rapid growth area as malware and threat actors infiltrate organisations infrastructure in all sectors of industry. ATU has a suite of cybersecurity programmes developed in conjunction with industry, aimed at improving network security, operational activity and organisational risk & compliance.

Internet-of-Things (IoT) enables healthcare professionals to connect with patients remotely and proactively. It has been used for passive monitoring in stepdown and tertiary care and more interactively in clinical hospital environments. The reliance of the healthcare sector on Internet-of-Medical-Things (IoMT) is not quantified and therefore the impact of IoT related cyberattacks on healthcare is unknown. Primary, secondary and tertiary care facilities have seen a growth in the use of IoT in clinical settings. Hospital networks use IoMT to remotely control devices and communicate medical telemetries. Tertiary care has increased the use of devices to remotely monitor patients in stepdown community facilities. 82% of healthcare organisations globally have experienced a cyberattack on their IoMT devices.

A recently published review (2020) on digital health engagement by the Organization for the Review of Care and Health Apps (ORCHA) determined that there has been a 180% increase in digital traffic to health Apps since the onset of COVID-19. Parallel to this, and in recognition of the potential role digital offerings can play in healthcare and disease management and prevention, National Institute of Clinical Excellence (NICE) has guidelines (2021) to develop standards that ensure innovative technologies are clinically effective and offer economic value.

This proposed research will capture IoMT usage in primary, secondary and tertiary care settings. It will also detail healthcare specific IoT technologies and protocols and the associated security measures. It will research existing healthcare specific IoT frameworks and determine if the current implementations are robust against evolving cybersecurity threats.

This fellowship will advance our understanding of the extent and associated security of IoMT deployments with the following specific objectives:

- Develop a critical awareness of global architectures and frameworks associated with implementing IoT in healthcare.
- Establish the technical requirements associated with IoMT implementation across different settings in healthcare in Ireland.
- Identify and appraise current IoMT usage in primary, secondary and tertiary care settings from a clinical perspective
- Assess the robustness of current IoMT deployments vis-à-vis cybersecurity

Requirements/Qualifications: The successful candidate will hold an Honours Degree (minimum 2:2, but 2:1 or higher is desirable) in a cognate discipline of computing, information technology, health informatics, electronic engineering, data security health and data sciences.

Students who already hold a degree by research at the level of the scholarship award, or students currently in receipt of postgraduate research funding and registered as postgraduate research students are ineligible. The recruitment processes for postgraduate research students will evaluate each student applicant's:

- Academic qualifications and performance;
- Proficiency in the English language;
- Experience. motivation and ambition;
- Suitability to successfully complete the advertised research project.

Postgraduate students selected for each Fellowship must:

- Register in ATU to pursue a postgraduate degree by research;
- Have previously graduated, or be due to graduate in 2021, in a discipline relevant to the proposed research.
- Possess prerequisite academic qualifications at first- or second-class honours
- degree standard (or qualifications and experience considered by ATU as equivalent to this standard).
- Participate in the VLINC programme in collaboration with Munster Technological University

Project Duration: 24 months

Conditions:

- €16,000 Stipend per annum.
- Postgraduate fees for EU students will be covered by the project* (see below)
- In addition, any necessary travel and material costs incurred during the project will be covered.
- Evidence of ILETS English language proficiency required as per listing below.
- Successful candidates must be able to engage with regional and national healthcare organisations to conduct required research.

Please Note: Candidates from outside the EU are eligible to apply but will be expected to provide evidence of sources of additional funds to cover excesses associated with Non-EU fees.

If either English or Irish is not the applicant's first language, evidence of English language proficiency is required for registration. Please refer to web link English Language Requirements | ATU - Atlantic Technological University (gmit.ie) view the minimum English language proficiency standards for entry to ATU

Project Start Date: 1st September 2022

Application Closing Date: 12 noon Friday 27th May 2022

Applicants should submit their:

- Curriculum Vitae (to include 2 referees)
- A copy of transcript of results
- A Personal Statement to:

Applications must be submitted to ResearchOffice@gmit.ie ***e-mail address only. Please ensure all documents are emailed as a single Word or PDF file.***

The Personal Statement should not exceed 1 page and include:

- How does your previous experience meet the requirements of the position?
- What is your motivation in pursuing this Masters research programme?
- Are you available to pursue 2-years of fulltime research?

For further information on the project, please contact: seamus.dowling@gmit.ie, carmel.heaney@gmit.ie or michael.schukat@nuigalway.ie

Data Protection Statement

ATU takes very seriously its legal obligations as set out in the General Data Protection Regulation 2016/679 (GDPR) and the Irish Data Protection Act 2018 to safeguard and protect your personal information in our possession. The personal information which you disclose to us in this form will only be used to assess your suitability; administer and register you for this scholarship. We will not keep your personal information for any longer than is necessary for those stated purposes. **For more details, please refer to ATU's Student Privacy Statement:** http://www.gmit.ie/general/student-privacy-statement

* *In lieu of fees the appointed scholar will undertake two hours of academic development activities per week during the academic year through participation in teaching support, tutorial provision, and/or practical demonstration.*