

Post Title: PhD Studentship in Healthcare Data Quality

Anticipated start date: September 2021

Stipend: €18,500 per annum (non taxed) plus university fees

Location: Trinity College Dublin

Closing Date: 3 May 2021

Apply: <https://forms.gle/4ZDc2DLRqbPj42VN6>

Why ADAPT?

- **Contribute** to the ADAPT research agenda that pioneers and combines research in AI driven technologies: Natural Language Processing, Video/Text/Image/Speech processing, digital engagement & HCI, semantic modeling, personalisation, privacy & data governance.
- **Work** with our interdisciplinary team of leading experts from the complementary fields of, Social Sciences, Communications, Commerce/Fintech, Ethics, Law, Health, Environment and Sustainability.
- **Leverage our success.** ADAPT's researchers have signed 43 collaborative research projects, 52 licence agreements and oversee 16 active commercialisation funds and 52 commercialisation awards. ADAPT has won 40 competitive EU research projects and obtained €18.5 million in non-exchequer non-commercial funding. Additionally, six spinout companies have been formed. ADAPT's researchers have produced over 1,500 journal and conference publications and nearly 100 PhD students have been trained.

As an ADAPT funded PhD researcher you will have access to a network of 85 global experts and over 250 staff as well as a wide multi-disciplinary ecosystem across 8 leading Irish universities. We can influence and inform your work, share our networks and collaborate with you to increase your impact, and accelerate your career opportunities. Specifically we offer:

1. Opportunity to build your profile at international conferences and global events.
2. A solid career pathway through formalised training & development, expert one-on-one supervision and exposure to top specialists.
3. A Fully funded, 4 year PhD postgraduate studentship which includes a stipend of (€18,500 per annum - non taxed), along with equipment, annual travel funding
4. Funding for annual student fees

Context

It is estimated that over 2,000 exabytes of health data was created globally in 2020. Much of this data was generated to support care, in acute and primary care, in connected health and other contexts. It is well known that modern AI techniques often require large training data sets.

This immense and rich global eHealth information resource, when it is suitably organised and

semantically linked, will enable AI to find new knowledge in health data. With the addition of AI, data quality assessed healthcare information has the potential to radically transform healthcare, through new clinical research discoveries and outcomes. As we move towards a learning healthcare system, one in which healthcare data flows to the research databases on which AI/ML techniques generate new knowledge, the proposed research considers what data quality issues arise in the eHealth domain and how can they be alleviated?

- A possible focus for the work is requirements to enable clinical care data to automatically populate clinical registries. Currently these are considered as separate and registry data is considered 'cleaner'. A second avenue of this PhD might look at whether and how ML techniques can take into account data quality metadata.

Upon completion of the work the successful candidate will be in a position, as an expert on data quality for AI, to significantly improve the impact of AI and data analytics in the eHealth domain. They will also be in a position to work in this area in large data centric ICT organisations in the health domain and elsewhere.

The successful candidate can avail of the opportunity to undertake their research as part of an interdisciplinary team of eHealth experts across the ADAPT institutions.

The student will be co-supervised by [Prof Gaye Stephens](#) (TCD) and [Prof Lucy Hederman](#) (TCD) and [Prof Damon Berry](#) (TU Dublin).

Informal queries may be directed to

Minimum qualifications:

First class honours undergraduate degree in computer science or similar discipline.

Preferred qualifications:

- MSc in computer science, eHealth or aligned field.
- Skills: Programming, data science, eHealth

Application Process

As part of your application you will be required to submit

1. A Cover letter (800 words max) including
 - a. A personal letter of motivation, indicating why you wish to conduct this research project offered by ADAPT, and why you expect that you will be able to complete the research successfully; (500 words maximum)
 - b. The letter should include a summary of your ideas (300 words maximum) for how you would approach the proposed research challenge with a specific focus on methods and processes for data quality assurance in the eHealth domain.

2. Detailed curriculum vitae, including – if applicable – relevant publications;
 - a. Details of your final year undergraduate project (if applicable)
 - b. Details of your MSc project - *Applicants without an MSc to provide evidence of any research experience.*
 - c. Details of any relevant modules previously taken, at undergraduate and/or Master level.
 - d. Details of any relevant work experience (if applicable).
3. Transcripts of degrees

Diversity

ADAPT is committed to achieving better diversity and gender representation at all levels of the organisation, across leadership, academic, operations, research staff and studentship levels. ADAPT is committed to the continued development of employment policies, procedures and practices that promote gender equality. On that basis we encourage and welcome talented people from all backgrounds to join ADAPT.

About the ADAPT Centre

ADAPT is the world-leading SFI research centre for AI Driven Digital Content Technology hosted by Trinity College Dublin. ADAPT's partner institutions include Dublin City University, University College Dublin, Technological University Dublin, Maynooth University, Munster Technological University, Athlone Institute of Technology, and the National University of Ireland Galway. ADAPT's research vision is to pioneer new forms of proactive, scalable, and integrated AI-driven Digital Content Technology that empower individuals and society to engage in digital experiences with control, inclusion, and accountability with the long term goal of a balanced digital society by 2030. ADAPT is pioneering new Human Centric AI techniques and technologies including personalisation, natural language processing, data analytics, intelligent machine translation human-computer interaction, as well as setting the standards for data governance, privacy and ethics for digital content.

Our Research Vision

Governments and civil society are starting to recognise the need for urgent and concerted action to address the societal impact of the accelerating pace of digital content technologies and the AI techniques that underpin them. ADAPT provides an ambitious, ground-breaking, integrated research programme that assembles three interlocking Strands that together are capable of addressing this challenge. Each of these complementary and reinforcing research Strands takes one of the different perspectives on the provision of personalised, immersive, multimodal digital engagement, i.e. the individual's experience and control of the engagement, the algorithms underlying digital content processing, and the balanced governance by enterprise and societal stakeholders.

Digitally Enhanced Engagement Strand

From the individual perspective, research within this Strand will deliver proactive agency techniques that sense, understand and proactively serve the needs of individual users to deliver relevant, contextualised and immersive multimodal experiences which also offer them meaningful control over the machine agency delivering those experiences.

Digital Content Transformation Strand

From the algorithmic perspective, new machine learning techniques will both enable more users to engage meaningfully with the increasing volumes of content globally in a more measurably effective manner, while ensuring the widest linguistic and cultural inclusion. It will enhance effective, robust integrated machine learning algorithms needed to provide multimodal content experiences with new levels of accuracy, multilingualism and explainability.

Transparent Digital Governance Strand

From the enterprise and societal perspective, new structured knowledge frameworks and associated practices for AI data governance will be required to balance the needs and values of individuals, organisations and society when it comes to rich digital experiences. This requires the advancement of research in the areas of data ethics, data quality, data protection, data value, data integration, and multi-stakeholder governance models.