

PhD Position

Ethics and Trustworthiness of Artificial Intelligence-Enabled Systems in the Public Sector

PhD Title: Ethics and Trustworthiness of Artificial Intelligence-Enabled Systems in the Public Sector

Research Centre: Lero, the Science Foundation Ireland Research Centre for Software

Location: School of Computing, Dublin City University, Dublin, Ireland

Duration: 4 years

Keywords: Artificial Intelligence, Machine Learning, AI-Enabled Systems, Software Engineering, Ethics, Trust, Public Sector

Background:

Lero, the Science Foundation Ireland Research Centre for Software, brings together expert software teams from universities and institutes of technology across Ireland in a co-ordinated centre of research excellence with a strong industry focus. Lero's research spans a wide range of application domains from driverless cars to artificial intelligence, cybersecurity, fintech, govtech, smart communities, agtech and healthtech. Lero's overall vision is to establish Ireland as a location synonymous with high-quality software research and development, to the extent that 'Irish software' can enter the lexicon in the same way as 'German automotive' or 'Scandinavian design'. Since it was founded in 2005, Lero has become one of the best-known, and most highly regarded, software research centres in the world.

Research Context:

Artificial Intelligence-Enabled Systems (AIES) are increasingly pervasive and revolutionising services across different industries.

The challenges and issues associated with AIES deployment in high stake contexts are increasingly discussed in scholarly outlets to increase efficiency, reduce potential harm, as well as promote fairness, equity, accountability and transparency in decision making [1]. Particularly, in the public sector, AIES may actually entrench, amplify and even obscure human bias and discrimination in decision processes [2]—something that underpins public concerns [3].

However, to date, neither theoretical models nor fit-for-purpose AIES process models exist to guide the development of ethical and trustworthy AIES.

PhD Objective:

The goal of the PhD thesis is to examine how the development, test, and validation of fit-for-purpose AIES in the public sector could be evaluated from a multidisciplinary perspective to provide insights into their ethics and trustworthiness for different AIES stakeholders (e.g., the adopting organisations, end-users/the public, regulators, auditor).

Relevant Readings:

[1] Yerlikaya, S. and Erzurumlu, Y.Ö., 2021. Artificial Intelligence in Public Sector: A Framework to Address Opportunities and Challenges. *The Fourth Industrial Revolution: Implementation of Artificial Intelligence for Growing Business Success*, pp.201-216.

[2] Castelluccia, C. and Le Métayer, D., 2019. *Understanding algorithmic decision-making: Opportunities and challenges*. European Parliament.

[3] Drobotowicz, K., Kauppinen, M. and Kujala, S., 2021, April. Trustworthy AI Services in the Public Sector: What Are Citizens Saying About It?. In *International Working Conference on Requirements Engineering: Foundation for Software Quality* (pp. 99-115). Springer, Cham.

Eligibility:

- First-class or upper second-class honour BSc (or MSc) in Computer Science, Software Engineering, Machine Learning, Data Analytics, or related fields
- EU national
- English Language Requirement:
 - o e.g., IELTS average score of 6.5
 - o See link for full list of acceptable proofs
<https://www.dcu.ie/registry/english-language-requirements-non-native-speakers-english-registry>

Essential Skills:

- Artificial Intelligence/Machine Learning/Data Analytics
- Computer programming
- Strong interpersonal and communication skills
- Problem solving and critical thinking

Desirable skills:

- Experience in Machine Learning
- Experience in Software Engineering
- Knowledge of Software Engineering methods
- Prototyping and programming
- Publication activities in relevant disciplines

Benefits:

The PhD position covers the payment of the PhD registration fees. The position also comes with a tax-free scholarship of €18,500 per year, an allowance for a PC, and funding for conference travel expenses.

The candidate will gain access to DCU student facilities and services (such as, clubs, concerts, sports centre, campus pubs, etc.).

Starting Date:

The PhD thesis will commence as soon as possible (preferably January 2022).

Supervisors:

Dr Malika Bendeche and Prof. Regina Connolly.

Informal Enquiries:

Get in touch by email with Dr Malika Bendeche (malika.bendeche@dcu.ie) and Dr Takfarinas Saber (takfarinas.saber@dcu.ie).

Application:

Send application by email to Dr Malika Bendeche (malika.bendeche@dcu.ie), Dr Takfarinas Saber (takfarinas.saber@dcu.ie), and Prof. Regina Connolly (regina.connolly@dcu.ie).

All applications to include:

- CV
- Cover Letter
- Recent Transcripts (if available)
- Contact details of 2 referees

Application End Date:

Applications will be accepted until the position is filled.

Interviews will be carried out as soon as a suitable candidate is identified.