Developing a Human Centred AI Masters:
the Good, the Bad and the Ugly

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ABSTRACT

The increasing use of AI in industry and society not only expects but demands that we build human-centred competencies into our AI education programmes. The computing education community needs to adapt, and while the adoption of standalone ethics modules into AI programmes or the inclusion of ethical content into traditional applied AI modules is progressing, it is not enough. To foster student competencies to create AI innovations that respect and support the protection of individual rights and society, a novel ground-up approach is needed. This panel presents on one such approach, the development of a Human-Centred AI Masters (HCAIM) as well as the insights and lessons learned from the process. In particular, we discuss the design decisions that have led to the multi-institutional master's programme. Moreover, this panel allows for discussion on pedagogical and methodological approaches, content knowledge areas and the delivery of such a novel programme, along with challenges faced, to inform and learn from other educators that are considering developing such programmes.

CCS CONCEPTS

• **Human-centered computing**; • **Applied computing → Education**; • **Computing methodologies → Artificial intelligence**;

KEYWORDS

Human Centred AI, Ethics, ML, AI, Masters, Graduate School

1 SUMMARY

This panel focuses on how a human centred Artificial Intelligence (AI) approach can be used to develop a postgraduate masters programme. This novel approach for developing a ground up masters with a core focus on a human-centred approach was driven by industry, academia and the EU via the CEF-TC programme, European Platform for Digital Skills and Jobs funding call [1]. The result was the Human Centred Artificial Intelligence Masters (HCAIM) [1]. This programme originates as industry adapts to the use of AI and as a response to recent EU guidelines such as the General Data Protection Regulation (GDPR)[1], the EU Guidelines on Trustworthy AI [2], a subsequent set of guidelines on the self assessment of the use of AI, The Assessment List for Trustworthy AI [3] and guidelines in progress on the use of AI in education, the EU expert group on artificial intelligence and data in education and training (where the guidelines are expected this year)[4] and finally the Artificial Intelligence Act (AI Act)[5]. Although in recent years, the European Commission has strongly committed to fundamental rights and human values in the development and deployment of AI, today few higher educational initiatives are ready to embrace the focus on ethical AI by including relevant disciplines in their programs. This panel aims to provide insights (both positive and negative) for other educators considering developing such a programme or adopting a Human-Centred approach in computing education, and also provoke discussion around pedagogical and methodological approaches, content knowledge areas and the delivery of such a novel approach for a masters.

2 PANEL STRUCTURE

The panel will discuss the relevance of an ethical and human centred approach to AI education, while also addressing the market and industry needs with regards to human-centred AI. The panel will focus on what the HCAIM project team has done so far, what it can possibly do and which are the current and future difficulties and needs (the Good, the Bad and the Ugly). The topics will cover specific educational subject matter, including but not limited to the

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[1]https://eur-lex.europa.eu/eli/reg/2016/679/oj
[2]https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1
[3]https://op.europa.eu/en/publication-detail/-/publication/73552fcd-f7c2-11ea-991b-01aa75ed71a1
[4]https://education.ec.europa.eu/news/expert-group-artificial-intelligence-and-data
[5]https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206

following five areas: Organisational AI; The current space of AI; Policy and AI; Human centred AI education and finally, Bringing it all together in the HCAIM programme. The moderator will provide an overview of the importance of Human Centred approaches in AI and Education. Then each of the five panellist's will have 10 minutes each to share their work on the development of the HCAIM in their respective specialist areas. Following the presentations, there will be question and answer session (30 minutes).

3 BARRY FEENEY (MODERATOR)

I am a Head of Computing at the Technological University of Dublin, Ireland. I have worked on developing computing programmes which integrate industry placement and research for over a decade. I am specially interested computer science graduate pathways to industry and how we ensure that computing graduates are aware of societal challenges and ethics in practice. I will over-see the moderation of the panel first by introducing the the HCAIM programme. Then will introduce each panellist, ensuring timekeeping. Following the five panellist discussions, I will moderate the audience discussion, both for in-person attendees and virtual attendees.

4 TARRY SINGH (ORGANISATIONAL AI)

I am an AI researcher, co-founder and CEO of deepkapha.com (AI Research Lab) and Real AI (Enterprise AI) where we focus on bringing state-of-the-art research in the field of Computer Vision, NLP, Robotics, Speech, DRL and AI systems from labs to production. AI holds the promise of dramatically transforming businesses and shaping decisions across practically all value streams. Yet, despite its massive potential, organizations haven't succeeded in scaling it beyond siloed successes. I will discuss paths to move from siloed to interdisciplinary and collaborative AI human-centric solutions that are responsible, explainable and ethical principles.

5 STEFANO MARRONE (CURRENT SPACE OF AI)

I am a research fellow and assistant professor at the Department of Electrical Engineering and Information Technology of the University of Naples Federico II, Naples (Italy). My research activities focus on leveraging AI in different contexts and domains, including privacy [3], transports [2] and media [7]. I will discuss the current space and state of AI, in the light of the ongoing revolution characterised by the pervasive presence of autonomous and intelligent artificial systems. The aim is to debate the fact that, despite AI is achieving unprecedented success in important areas (e.g. medicine), it is also rising severe concerns about its misuse in critical domains, that must be taken into account by stakeholders and policymakers.

6 MONICA ZUCCARINI (POLICY AND AI)

As a political scientist curious about the use and abuse of technologies, I continually stumble into projects somehow related to the digital era: online privacy and security, digital government, innovative approaches in digital education, etc. My contribution here intends to bring politics into the discussion and encourage dialogue on the relevance of a data-oriented culture. Today data that generates our digital "self" and that configure us as a "networked person", must be considered a political resource, helping create an open society.

7 HUIB ALDEWERELD (AI EDUCATION)

I am an associate professor and programme manager of the bachelor's and master level computer science education at HU University of Applied Sciences. I have over a decade of experience in the setup and execution of artificial intelligence related education, and was responsible for the creation and implementation of the first bachelor programme on AI for Applied Sciences in the Netherlands. My contribution here focuses on the challenge of bridging the gap between the humanities (ethics) and engineering (AI). With the limited amount of time available in educational programmes, choices need to be made to achieve both the required technical depth as well as the necessary ethical awareness. Whereas yesteryear's education competencies of AI focused on the technical and scientific underpinnings of AI, that is no longer sufficient.

8 KEITH QUILLE (BRINGING IT ALL TOGETHER)

I am a senior lecturer at the Technological University Dublin, Tallaght campus, with research focused in the area Educational Data Mining (EDM), specifically developing models to predict student success in computing courses[4–6]. I am currently leading an international research project that aims to develop a trustworthy AI platform to predict success, where the model, the data and the process will be openly published [6]. I am also a member of the EU expert group on Artificial Intelligence (AI) and data in education and training [6]. I will discuss the final development of the HCAIM programme, spanning pedagogical and methodological approaches, content knowledge areas and the delivery of such a novel approach for a masters programme.

9 ACKNOWLEDGEMENTS

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