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Editorial: Ethics in the Metaverse

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Editorial on the Research Topic
Editorial: Ethics in the Metaverse

Mixed reality is emerging as the next phase of personal computing where 3D worlds are collectively forming a meta universe of virtual or mixed reality domains -the "Metaverse". The compound term originates from, "meta", meaning in Greek, "after", "beyond" or "transcending" and "verse" meaning "universe". First coined by Neal Stephenson in his science fiction novel Stephenson (1992), the concept could already be found in Gibson (1984). And whereas Gibson portrays a rather dark world, Stephenson envisioned an online universe which closely resembled reality and people could use avatars to escape from real world problems.

Today, with emerging technologies such as VR, AR and MxR, the Metaverse is no longer science fiction. Virtual platforms are presently available and emerging as ways to connect and to digitally and engage in virtual spaces. They are of growing importance as to how we socialise and do business. The Metaverse is becoming a potential product and facility for working, learning, gaming, and more. It may include virtual worlds and other virtual spaces including augmented reality. It may include elements of a real world with digitally augmented content that are live, changing, perceptible and interactive to human users (Smith, 2016). Mixed reality as a metaverse is potentially where affordances of the digital and analogue worlds could work together to create new interactive learning, social and economic opportunities, but also challenges.

In this Research Topic, different concepts of the metaverse and associated ethical Research Topic are explored. Ethical challenges arise as the physical world itself and becomes an interface making reality even more machine-readable, searchable, and personalisable. By wearing a mixed reality device, users may by default be generating profound 3D models of everything they view in their actual physical locations and capturing a range of real-world content which may include both the individual and other people. For example, many mobile devices have inbuilt lidar technology and can create a 3D point cloud of any environment or object (Demir, 2021). Depth sensors are being built into different devices, but mechanisms for protecting one's body image and possessions have not been well established, neither have procedures for mitigating risks of bias against individuals or groups or tracking personal preferences as a result of data obtained by field in view.

This information can be used to enhance user experiences, but also capture technologies combined with machine learning can open multiple paths for advertising and manipulation (Bard, 2020). For example, using big data about where millions of people are looking and their facial expressions, eye movements, and body movements, in response to that, can be of ethical concern, because then models can be built of user reactions, both at the mass and the individual level - which then can be used for targeted advertising and political manipulation. How do we reduce the potential of mixed reality experiences to reduce our own privacy, security, autonomy and personal freedoms? How can ethical design approaches for an open metaverse counteract such concerns?

The selected contributions explore and address several of these Research Topic:

Smith et al.[1] introduce an ethical design framework, Shared Consent Framework (SCF), for the design and use of Metaverse technologies with human wellbeing in focus. The paper begins with an extended definition of the Metaverse and reviews consent challenges that arise and explores the knowledge gap of consent needed to ensure a fair and just use of data within the Metaverse. Specific examples of challenges of consent are examined, such as unauthorised surveillance and the need for ethical and moral standards in large platforms. A novel five stage SCF is presented in response to understanding the limitations of existing consent frameworks. Protocols and approaches to create implementations of the SCF are presented.

Rasool discusses the risk associated with the rise and use of technologies such AI, Metaverse and Blockchain technologies, that occur as they become smarter. Potential risks presented are that with further reliance on such technologies, human beings may abdicate their thinking capabilities, including those related to creative problem solving, to machine intelligence. For prevention of cognitive decline in human beings as machines get smarter, the authors call for new approaches within Industry 5.0, Fifth Industrial Revolution (5IR) that "focus on a harmonisation of human and machine intelligence." This paper proposes that the practice of coaching in the future must embody 5IR mindsets, techniques and technologies. Emerging regulations are reviewed, such as the EU AI Act and a novel approach is introduced for "Coaching 5.0" as the discipline of coaching that is fit for practice in 5IR environments.

Raja and Al-Baghli examines the intersection between ethics and the responsible use of VR. The authors' definition of VR is inclusive of technology that companies and creators call the "metaverse," or an artificial virtual world in which people occupy a simulated reality and conduct their business there (Metz, 2021). Explored are the ethical Research Topic that arise in the use of VR, such as consent, privacy and harm. The paper examines current literature, government documents, and conducts an analysis of 300 Amazon reviews of three top-rated VR products—to identify the ethical concerns of various audiences. Three frameworks are reviewed that could guide users towards more responsible VR use: 1) Institutional Review Board (IRB) frameworks, 2) a care ethics framework, and 3) co-created, living ethical codes. This research draws from these three frameworks to offer a new ethical synthesis framework or ESF framework that could guide responsible use.

Peña-Acuña and Rubio-Alcalá identify the growing prevalence of immersive technologies (IM) in educational settings, and the challenges of lack of familiarity and knowledge necessary for the effective development and application of these technologies (Jamaludin et al., 2020; Costan et al., 2021; González and Valencia, 2022). A snowball documentary methodology is used to explore the ethical implications of integrating advanced IM into education. Ethical concerns and advantages of applying IM of the Metaverse are identified, highlighting differences and commonalities between AR, VR and MxR technologies. Ethical dimensions of access and inequalities, protection, privacy and data protection, and development and design are examined. A key finding is that while the Metaverse focuses on identity protection, in education, IM exhibit more developed ethical concerns. This research underscores the richness and nuances the challenges of using diverse IM in education as compared to the Metaverase.

Seen together, the contributions explore ethical Research Topic related to AI and IM (e.g., VR, AR and MxR) through a multitude of methodologies (e.g., literary reviews, white paper analyses, empirical studies) and perspectives (e.g., legal, user-centered, educational). They develop frameworks and propose responsible approaches to handle risks and secure privacy and consent in the Metaverse. There is clarity in the contributions with respect to understanding that our current systems, processes, and approaches are not prepared enough to respond to IM challenges. Only through works such as covered within this Research Topic can we start to build towards more ethical and responsible uses of such technologies.

As educators, there is a clear challenge with respect to developing peoples' understanding of how such technologies can be both enablers and inhibitors of progress. Existing ethical Research Topic within web-based contexts are complex for users to navigate, what we see through our paper contributions is that many of these challenges remain and are enhanced when mapped into the Metaverse. Metaverse applications keep progressing, ethical Research Topic continue to remain and user education of the impact of these Research Topic on personal privacy, security and wellbeing whilst improving - as our traditional educational structures and our media structures provide more content and develop understanding - struggles to keep pace with the rate of change.

For further research, there are several pressing ethical Research Topic which these contributions merely touch upon, but which should be addressed, particularly linked to more positive use of the technologies. For example, (but not limited to), the Metaverse could empower persons identifying with marginalized groups and/or vulnerable life situations in ways that we have not explored, e.g., through co-creation methodologies and the development of platforms to strengthen community support and engagement. We strongly encourage such inquiries.

Author contributions

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The authors declare that no Generative AI was used in the creation of this manuscript.

1 Carl Hayden Smith, Judith Molka-Danielsen: These authors have contributed equally to this work and share first authorship.

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