Future Civic Concerns in Virtual and Mixed Reality

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Abstract

In this position paper, through my previous research project (as part of my dissertation for Open Lab in Newcastle University), I will briefly comment on the methodology employed to engage with 'expert participants' in future-oriented discussions about Mixed Reality (MR) technology and discuss (i) perceptions on how the current technological status quo including socio-political issues of diversity, inequality and political activism are projected and reproduced in the future; (ii) how the future of work and labour might be affected; and (iii) possible effects of MR in exacerbating phenomena of individualisation and isolation and social tribalism.

In my research project I engaged with communities and 'expert participants' active in critical discussions and development of emerging technologies in Athens, Greece, in a workshop, through the use of the Sci-Fi Prototyping approach, to unpack ideas around the future of MR in the context of civic action and participation. I proposed a methodology for the engagement of experts in discussions around the role of emerging technologies and, through the analysis of the collected data, I contributed a deeper understanding of the socio-technical implications of MR use in the future.

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Introduction

Head-mounted devices (HMDs) for Virtual Reality(VR) or Augmented Reality (AR) offer users an illusion of ‘presence’, a sense of ‘embodiment’ (identification with a virtual body) and/or the ability to interact with virtual environments and virtual objects via position tracking, voice commands, and more. While many technical challenges are solved or at least known, there are many more underexplored or even yet-to-be-seen challenges. The social and cultural impact of immersive media is one such challenge. More specifically, what civic technologies utilising VR and immersive media can look like, and what benefits and challenges do these new forms of expression, communication and collaboration might pose to social movements and local communities ‘in the wild’.

In 2020 VR and AR applications are becoming more and more popular with big social media platforms and technology companies trying to break into the market. Apple announced its plans to release AR glasses and Facebook recently announced its Horizon project [4], an ambitious virtual reality social media platform that is reminiscent of the OASIS in Enrenst Cline’s dystopian sci-fi novel Ready Player One [3].

The technology for MR is not totally new but the recent explosion in available devices and content for immersive media has renewed interest in this field. Research in HCI has focused on collaboration but the convergence of all the technologies of the past two decades (e.g. advancements in Algorithmic Decision Making, Computer Vision, Machine Learning, 3D printing, IoT, DLT etc) has given rise to the potential of massive social networks in the physical, virtual and augmented space on a scale never before imaginable.

While research has been carried out in the social aspect of MR, and some researchers have pointed out the potential of these technologies to have political, cultural and ethical significance on communities, the social affordances of VR currently are being tested through simple multiplayer games (e.g. Rec Room), chatrooms (e.g. VRChat) and installations (e.g. Carne y Arena). Researchers have pointed out the potential of these technologies to have political, cultural and ethical significance on communities.

Engagement

In my research project I combined the the Science Fiction Prototyping (SFP) along with Story Completion Method (SCM) methods in a workshop setting to create ’expert participant’-led narratives that embody their cultural ideals and which present the implications, effects and ramifications of emerging technologies in the future.

In his work as a futurist at the Intel Corporation, Johnson used the SFP method to assist the company in thinking ’humanistically’ about the technologies being developed [11]. According to Burnam-Fink, SFPs are ”Short works of Fiction, grounded in scientific fact for the purpose of starting a conversation about the implications, effects, or ramification of technology in the future.” [2].

When juxtaposed next to other methods which aim at mixing technology design and science fiction within design discipline, the SFP method seems to have a lot in common with such methods and approaches as critical design [20], speculative design [7] and design fiction [19].

The SCM, although it is typically a methodology used in qualitative psychology [21], draws parallels with the methods used in recent HCI research [13, 6]. Wood et al [21] used the SCM to elicit ”common cultural ideals non-experts constructed of a ’new’ pornographic experience - VR Porn”.

Setting up the workshop as a series of game-like activities

reminiscent of pen-and-paper-RPGs (role playing games) helped ease-in the participants and was particularly well-suited for the topic of immersive and mixed realities. Then, the generated narratives were used as design fiction probes to further the discussions among participants. The workshop setting allowed for deeper understanding of the ideas generated in the fictional stories.

Civic Concerns

Inequality

It is well reported that emerging technologies, like AR, have the capacity to reproduce and magnify existing social inequalities based on the societal and economic assumptions embedded in their architecture and design [9, 12, 5].

Our expert participants, through the speculative worlds that they created, reinforced this view by suggesting a future MR infrastructure based on subscription models and exclusive features only available to the 'higher tiers' of society. In their narratives, 'tiers' of access to the infrastructure and technological affordances worked as barriers which, selectively, excluded members of society based on socio-economic factors.

In this regard, technological advances were perceived as perpetuating today's inequalities, which are supported or reproduced by existing digital information and communication technologies such as social media, paywalled digital libraries and sharing economy platforms. Still, 'future resistances' also emerged in the speculative scenarios and discussions, which departed from today's emerging maker and DIY movements, suggesting the creation of similar hacker initiatives, DIY communities and infrastructures for MR.

Work and Labour

Our participants noted, in a future with fully integrated MR most work can take place anywhere, at any time, changing the temporal and spatial boundaries traditionally associated with work and co-located collaboration. This is a projection based on today's possibilities offered by smartphones and laptops, which arguably serve as forebearers of modern MR offering less immersion and less immediate augmentation [14]. This is reflected in the fictional narratives, with implications for the organization of, collaboration in labour and work-life balance [16, 1].

Arguments, usually, place automation either as a liberating force, freeing people of the need to work and labour over repetitive tasks, or as a danger that will take over manual labor, leading to mass unemployment. Participants in our study saw an even darker side to this, implying a change of roles, where people are forced into doing the manual labor guided by an artificial intelligence, algorithms, or information systems that manages and distributes knowledge and tasks.

Within HCI the requirement for human support in automated tasks has been labeled 'heteromation' [8], and places the human worker as an 'indispensable mediator' within automated tasks where the machine might not be able to address a critical task. Our findings contradict this view, placing the worker, not as 'indispensable' part of a critical task, but rather as a replaceable cog following the provided instructions.

We argue that this can be achieved by following the examples set by the open-source communities, the DIY communities and the online skill sharing resources available today and applying their tactics. At the same time, such debates that are currently driven by early-adaptors and the digital avant-garde will also have to shift to public policy-making levels.

Individualism and Social Tribalism
Extrapolating from some well reported problems of today's networking infrastructure, such as the creation of "information bubbles" [17], the rise of fake news through social media networks [18], and data breach scandals that allow companies to target individuals and influence their behaviours [10], our participants were concerned with the implications that these may have when perpetuated to the urban environment.

Given contemporary challenges arising from an arguable radicalisation of opposing political groups, a possible deeper pervasive tribalisation of public realities and "variable, designed experienced truths" does warrant cautious study, as well as investigations into possible regulation or countermovements. In addition to such effects that mirror existing realities, an extreme personalisation of public and private space may also lead to isolation and further extend today's social inequalities.

Our findings suggest that open source communities and commons licencing can create parallel MR infrastructures that can be accessed and modified by the members of a community, giving them a voice and enabling the co-creation of such virtual and augmented spaces. These findings suggest the need for the creation of an "Mixed Reality Commons" infrastructure, inclusive to people of all socio-economic backgrounds and resilient to manipulation from external interests. Through the creation of such tools, common resources and knowledge can be augmented, better disseminated, tracked and managed by the community.

Immersive technology potentials have the capacity to empower people and communities if designed with an understanding of information as commons and access to knowledge as a citizen right [15]. We call HCI researchers to contribute to the further development of such common knowledge repositories and extending their relation to the physical world through the design of inclusive MR infrastructures.

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