Editorial

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'*Extended Senses*: Embodying Technology'

OVERVIEW

This series of articles was generated from the *Extended Senses Symposium 2022*, held at University of Greenwich, 8–9 September 2022, including an exhibition (8–10 September in the Stephen Lawrence Gallery).

The partnership to host the first *Extended Senses: Embodying Technology Symposium 2022* between the University for the Creative Arts (UCA) was led by co-chair Camille Baker and University of Greenwich led by co-chair Ghislaine Boddington. This symposium has its roots in the long-term practice-led research of both the co-chairs Baker and Boddington.

The research group X10DD Senses Laboratory, where the idea for a symposium was born, was initiated and led by Baker, based at UCA. The goal of this group has been to nurture new cross-disciplinary research and bring together researchers, staff and students from digital media, creative coding, fashion and textile design, computer games, digital film, screen acting and performance, animation, architecture, visual communication and others – into one dynamic research group, from inside and outside UCA and the United Kingdom. With Baker's long research and practice focus on interactive and immersive, performance, wearables and haptic interface development, embodiment, presence and affect, with the individual, social and environmental ethics and sustainability: the aim has been to bring students and colleagues together to debate issues, hold workshops, hatch projects, and work together across disciplines, courses, campuses and institutions.

Boddington is based at the School of Design, University of Greenwich as a reader in digital immersion. The school focuses on sustainability, diversity and inclusion in design practice and research, enabling knowledge exchange with creative industries for future employability and policy evolutions. Steered by her pioneering work in telepresence and virtual physical blending from the early 1990s Boddington's research-led practice is rooted in her work as creative director of two collectives (shinkansen sound and movement research [1989–2005] and body>data>space [2005–present]) known for their longterm advocacy of 'the living body as the interface for digital technologies'. Her research 'The Internet of Bodies' (2009–present – Impact Case Study REF21) has evidenced public, international and policy impact and she continues to explore digital identity, trust and intimacy, collective hyper-embodiment, hybrid presence and the ethics of biometric harvesting.

After many years of knowing each other's work Baker approached Boddington to work together and collaborate between their institutions on a research activity such as a symposium, a public exhibition, documented online outputs and follow up journal papers/archived documentation.

The main theme of the symposium, including exhibition and early career workshop, was to explore ways to extend and expand the body through new and emerging modalities and technologies. The event included interactive installations, virtual reality (VR) and augmented reality (AR) experiences, digital video, animation, films and an online performance, together creating innovative interactions of the living body with sound, light and image. Focusing primarily on the body as a site of knowledge production within this field, it highlighted immersion, haptic engagement and evolving body led interfaces to understand and enable the bridge between the analogue and the digital realms.

With a view to address the social, economic and environmental impacts of the expansion of technology developments, we wanted participants to disentangle them from concerned actors: from users and device manufacturers, to marginalized populations who do not have access or are monitored without their consent. Participants were encouraged to propose socially responsible work for the symposium/exhibition that engage with issues such as: the climate crisis and environmental sustainability, data ethics, personal data ownership, surveillance and privacy, women's health and equality and other urgent issues that affect the body.

The themes for submissions were intended to span the spectrum and interfaces between the physical and the virtual, including but not limited to, electronic or smart textiles, research exploring multimodal interfaces and human–technology interaction, dance, theatre, music and other performance modes, as well all artistic and design work that engage with technology to translate different embodied senses and experiential sensations. We encouraged submissions that:

- redefined embodiment, presence, liveness and affect
- used multimodal interfaces and human–technology interaction in dance, theatre, fashion, music and/or other performance modes
- explored interactive, immersive, performative, wearable, tactile and/or haptic interface development
- identified ways to understand what is to be human and the role of our senses to make better technologies and creative tools through art, design and creative industries practice
- experimented with new blended and hybrid interfaces between the virtual and physical, including sense enhancement in virtual worlds and
- discussed the future for the natural world in connection to ecosystems in metaverse(s).

Not all of the papers that were chosen for the symposium were the right fit for virtual creativity, and many were much more focused on more traditional forms of artwork such as photography or were purely about smart textiles and textiles fabrication. Therefore, the selected works herein were chosen for the innovative ways in which they explored immersive methods of engagement in technologies, or questioned the role of VR for performance for remote audiences or other novel approaches to virtual creativity.

The order of the papers is based on a topical flow, from a philosophical analysis of VR video games (Damian Walker), to a close reading of a VR experience trying to replicate the physical experience of taking Ayahuasca with shamans in the Amazon (Miller et al.), to a critique of modern dance and ballet recorded for VR, compared to the conventional live, in-person experiences (Kirwan), to a unique exploration of virtual through the voice embodiment sound

artwork of KIMA Voice (Analema Group), to the new gestural tools created for virtual musical performance (Gibson), to the hybrid real and virtual installation *When Heart Speaks* (Briede), and finally on the exciting AR project on body data and organ donation in *Donate Yourself* (Pistilledies et al.). All loosely discuss immersive experience and virtual embodiment from different perspectives, adding to an evolving understanding of extending the senses and embodying technology.

Damian Walker's piece, 'Maturing the narrative sense through mixed reality games', opens the issue with a philosophical analysis of media-based narratives in games. He states that people see or experience narratives from the world we live in … and create our own as if were its own sense. Our bodily senses enable people to receive and perceive patterns around us in the world and modify our behaviour as a response to those patterns. Walker claims that, 'sensing narratives plays an important role in situational appraisals, and provides important context for what we see, hear, touch etc'. He feels that this deserves recognition as a sense, as it is a response to real-world time-based patterns experienced in our lives and communities. He believes technology enables this narrative sense by helping us to design methods to influence our experiences of these narratives and our sense of them and providing evidence of our senses.

Miller et al. in 'Sipping the virtual elixir: An autoethnographic close reading of *Ayahuasca Kosmik Journey*, a self-transcendent virtual experience' then follow with a close reading of this VR experience in its efforts to replicate the physical experience of taking Ayahuasca with shamans in the Amazon. They aimed to understand the potential, limits and experiential qualities that immersive experience design of VR could afford designers through their analysis of Atlas V's *Ayahuasca Kosmik Journey* (2020). They use the research method auto-ethnography studying their responses and experiences of the project through multiple viewing and try to deconstruct the design elements of the media work. They then discuss their results, experiences and insights of the content, design and experience, then critically analyse the experience from the collective outcomes from the six different researchers.

Emily Kirwan follows with 'Performer/audience experience, performer perception and audience immersion', a critique of recorded VR experiences of modern dance and ballet productions compared to the conventional live, in-person experiences. She analyses several dance productions for VR and the experience of each for the audience. She investigates if VR can supplant the live experience or if VR is a different experience. She examines this from both the performer's experience and that of the audience. She investigates how performers and audiences had differentiated experiences of the making and experiencing the artefact and what meaning-making and engagement results. Her premise and conclusion is that in 'the incorporation of technology, creators and audiences may become so engrossed by the effects of technology and what can be achieved, that we perhaps overlook what is omitted when technology takes centre stage'.

The article '*KIMA: Voice*: The human voice as embodied presence', documents the artwork of KIMA Voice by Analema Group and their ten year exploration of the 'pivotal role of the human voice as means for social connectedness' and virtual embodiment through participatory audience engagement. They begin with the premise that the social isolation and sensory deprivation of the COVID-19 pandemic can now be mitigated through participatory media arts experiences for audiences coming back to public arts events and activities and *KIMA Voice* is an example of this. They document the various iterations and performances of their project KIMA Voice, which demonstrate through facilitating audiences in a 'co-authored' open, process-based visual sound work that encourages the exploration of harmonies between participants – that the artists are actively enabling community connection, engagement, playfulness and group healing in public spaces.

Next in 'Gestural interaction commonalities in body-based performance', Steve Gibson discusses his recent work of the development of new gestural tools for virtual musical performance. This is a more straight-forward discussion on his research into 'gestural and motion-based interaction within the context of

body-based audio-visual performance'. Gibson describes commonalities between different approaches to both large-area and small-area interaction in relation to his ongoing own work with motion-tracking technologies. He expands on and describes his experiments and collaborations with Northern Dance and the development of his tools and use in virtual performance. This is also discussed in his recently published book, *Live Visuals: History, Theory, Practice*, co-edited with Donna Leishman, Atau Tanaka, Stefan Arisona and others.

In 'When hearts speak', Ilze Briede discusses the design and development of her hybrid real and virtual installation *When Heart Speaks*. The article discusses the empirical research approaches and strategies in human computer interaction (HCI) of researcher and computer scientist Kristina Höök's *Soma Design* in human computer mediations, and Briede's interpretations of these biosensing user-interface design strategies. Briede's aim is to demonstrate how her creative interpretation of Höök's strategies and technical processes can be seen in her bio-art installation and virtual sculpture called *Somatic Interventions,* developed as part of Vertical Studio Lab at York University, Toronto, Canada, led by Professor Mark-David Hosale. The core of her investigations seems to be understanding how biosignals can inform and structure design choices when making an immersive system, specifically her own project. She documents Höök's and others' related work, her process and outcomes for her *Somatic Interventions* installation, and her final assessment of her success in using these strategies. She ends by envisioning *Somatic Interventions* as a tool for audiences to interact directly with sensing devices and a physical manifestation of artificial life, as a means to meet others in collective participation and share experiences.

And we end with Pitsillides et al. in '*Donate Yourself*: An AR trail exploring the future of organ, tissue and body data donation', describing the development, research, collaboration and exhibition of their work *Donate Yourself*, an exciting AR project on body data and organ donation education and ethical issues that it highlights. It discusses the organ and tissue donation processes, ethical issues and legal implications since the UK law changed from being opt-in to opt-out without properly educating the public on the implications of this change. The article demonstrates the different NHS campaigns used to raise awareness of the change and what these campaigns did to confuse the issue further for the public. The project *Donate Yourself* was released in November 2021 to highlight three powerful meta-narratives in the public about organ and tissue donation, enabling them 'to consider the space and role of our bodies in society, along with our personal/collective legacies postdeath'. The project discussed is an AR participatory artwork, an education tool and a public conversation starter and awareness project and each aspect is discussed, including the workshops and toolkits developed for it. *Donate Yourself* was also in the *Extended Senses Symposium 2022* exhibition demonstrating how the practice-led side of the project led to different outputs – journal, exhibition and presentation. Thus, this article documents the trajectory, impact and legacy of the project and its future implications and more broadly the whole such projects have to help to bring ethical and critical issues to the public consciousness.