

## The hidden influence

McStay, Andrew

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# The hidden influence: exploring presence in human-synthetic interactions through ghostbots

Andrew McStay<sup>1</sup>

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## Abstract

Presence is a palpable sense of space, things and others that overlaps with matters of meaning, yet is not reducible to it: it is a dimension of things that hides in plain sight. This paper is motivated by observations that (1) presence is underappreciated in questions of modern and nascent human-synthetic agent interaction, and (2) that presence matters because it affects and moves us. The paper's goal is to articulate a multi-faceted understanding of presence, and why it matters, so the importance of presence may be readily understood by those who regulate media, digital and artificial intelligence (AI) industries. Novel forms of presence raise all sorts of questions of what it means to live with new forms of presences. Some of these are highly positive and others are resistant to simplistic moral diagnosis, a point explored through extended consideration of 'thanatechnology' and 'ghostbots'. To clarify and foreground presence, this paper draws on continental philosophy and technologist ideas about presence to understand the significance and parameters of presence. It then puts these to work by considering a range of existing and emerging human-synthetic agent interactions, arguing that that presence is an underappreciated yet crucial factor in human-synthetic interactions, particularly involving AI and ghostbots. The paper concludes with points of focus for organisations charged with media, data protection and AI governance regarding facets of presence-based characteristics for emergent human-synthetic interaction. Foremost is consideration of open standards for a presence-based afterlife and suggestion of a temporal firewall, or a break of time before resurrection, to prevent harm to those who have recently lost someone.

**Keywords** Artificial intelligence · Ghostbots · Mixed reality · Open standards · Presence · Synthetic agents

## Introduction

Given recent developments in AI and use of image and language-based systems to recreate people, what is the role of presence, and what is presence anyhow? This paper argues that presence is a factor of modern media and technological culture that hides in plain sight and that it requires greater attention by those who govern digital and artificial intelligence (AI) industries. Its proposition is that presence is an underappreciated yet crucial factor in human-synthetic interactions, particularly involving AI and ghostbots. Presence is the easily missed affective dimension of things and people that moves us without us noticing. It can be thought

as the difference between seeing a picture of a forest (a representation) and feeling like one is standing among the trees (presence). Presence then is a palpable sense of liveness, space, things, and others, that overlaps with matters of meaning yet is not reducible to it. Due to its missed obviousness, presence is hard to define at the outset, although it may initially be conceived of in terms of excess, or what remains after one has accounted for issues of meaning, semiosis (the terms by which meaning is created), and technical means by which presence is stimulated. To clarify and foreground presence, this paper draws on continental thought and technologist ideas about presence to understand the significance and factors of presence. It then puts these factors to work by considering a range of existing and emerging human-synthetic agent interactions, especially through discussion of ghostbots.

Novel forms of presence raise ethical questions regarding what it means to live with new forms of presences. Some of these are highly positive, some grim, and others

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✉ Andrew McStay  
mcstay@bangor.ac.uk

<sup>1</sup> School of History, Law and Social Sciences, Bangor University, Wales, UK

are resistant to simplistic moral diagnosis, a point explored through extended consideration of presence and ghostbots. The paper's goal is to articulate a functional understanding of presence, and why it matters, so the importance of presence may be readily understood by those who regulate media, digital and AI industries. To convey a clearer understanding of presence and why it matters, the paper begins with a two-pronged approach. First is philosophical to better understand the experiential reach and significance of presence. Second is technological, to understand techniques of how presence can be stimulated. Having crystallised these into a taxonomy of presence so the multiple facets of presence can be quickly seen, the paper then considers presence in relation to human-synthetic case examples to foreground the need to routinely consider presence. Some are fun and the Swedish pop group, Abba, illustrates what this paper sees as positive uses of AI-generated presence, although band members themselves discuss the significance of the dead. The rapper Biggie Smalls, who was effectively digitally resurrected, introduces questionable uses of a 'thanatechnological' sort (Sofka, 1997) due to the question of volition in relation to death and resurrection technologies. An extended discussion of presence and resurrection is then raised through what Harbinja et al. (2023) phrase as 'ghostbots' and others as 'deadbots' (Hollanek et al., 2024), or recreations in an interactive form of a deceased person's likeness after death. While there may be a sense of the unlikely and the absurd in these nouns, the ghostbot issue has scope to quickly develop as synthetic presences became easier to train. Although a fair degree of attention has been given to legal questions of ghostbots, involving diverse topics (foremost privacy, reputation, copyright, and consent), this paper is focused on the issue of presence. To those interested in the question of "What to do about ghostbots?" the paper shows that we need to be aware of the difference between representation and presence, and that this affect-based difference is vital to understanding the personal and social significance of ghostbots. The paper concludes with points of focus regarding synthetic presence that those charged with governing media, digital and AI industries should be mindful of. Foremost is consideration of open standards for a presence-based afterlife and suggestion of a temporal firewall, or a break of time before resurrection, to prevent harm to those who have recently lost someone.

## Perspectives on presence

Presence is a powerful influence that is often missed, but its effects matter. This paper sidesteps ancient Greek debate about presence and the nature of reality (see McKirahan, 1996), opting to focus on more modern accounts of presence.

Brentano's (1995 [1874]) and Husserl's (1970 [1900]) work on experience and intentionality is an important element of this modern history, particularly as it uncovers directedness of consciousness, that presence is a fundamental aspect of human experience, and how experience structures things to provide them with an experiential unity. Presence is in part a hidden part of the psychological realm, being the 'inexistent' objectified aspect of a thing to which our actions are directed. This is vague, but the process is that which gives us chair-ness, mug-ness, and even temporary principles such as paper weight-ness (anything heavy that can hold a book open). The point is that presence involves a difficult-to-budge certainty of what things are for us – a "being".

Related is Heidegger (2011 [1962]) who argued that a thing is more than its foregrounded appearance, its physicality, usefulness, or any means by which a thing might be reduced. Here, the being of an object comes to be through social and psychological context, or what Dreyfus (1991: 10) phrases as 'the intelligibility correlative with our everyday background practices.' Derrida (1976 [1967]) radicalises Heidegger by arguing that immediate presence is an illusion, as meaning is always deferred and mediated by language and context. This introduces an important question about the relationship between meaning and presence, a point while we soon come back to.

Others have looked at presence through the prism of politics and society. Arendt (1958) discusses the idea of presence in the public sphere, exploring how individuals present themselves in the world of action and speech, which is crucial for political life and identity. Connected, Agamben (1993) explains presence in terms of political and existential conditions, how social presence is controlled through biopolitical control, and how individuals navigate these structures. Looking at interpersonal presence as a foundation for social ethics, Levinas (1981) focuses on the ethical dimension of presence, particularly in relation to the Other (as in other people). He argues that face-to-face encounters with the Other calls for an ethical response, highlighting the presence of the Other as an ethical imperative that transcends mere physical or perceptual presence. Presence has also been accounted for in terms of gender, with Irigaray (1985 [1974]) critiquing how male-centred social discourse has constructed female presence (in negative or deficient terms) and how these may be subverted to create new articulations of presence.

With sympathy for phenomenological accounts of presence, Ghost and Kleinberg (2013) argue that presence involves the existence of a dimension of things that we cannot touch, yet they nonetheless touch us (Ghost & Kleinberg, 2013). One, for example, only need consider what it is to arrive home: while it is about connotation and association, there also an additional factor which is difficult to

grasp but intimately and powerfully experienced. Similarly, Nancy sees presence as a ‘to-be-here, or to-be-there, as a coming-to-here, or there, of somebody’ (1993 ix). Nancy’s discussion is about art and how plasticity (manipulation of substance) is a clearing of sorts that allows being (including meaning) to occur. For Nancy then, presence is not defined by its substance but it’s ‘being there’. Extension, thought, and experience overlap, as ‘being there’ invokes questions about spatial relations between viewer and thing, its status as a *singularity* of sorts, and how it may *efface* that which is around it. Expanded, effacement, for understanding of presence, refers to the drawing of attention, defining of space, erosion of what would otherwise be there, and impact and interaction with that which surrounds the thing. Put otherwise, the singularity/presence can function as an independent part of reality. Less abstract is the premise that objects given form by synthetic means raise presence-based questions of how digital presences relate to and efface the real.

Merleau-Ponty (2002 [1945]) is also interested in experience, presence, and the body, but emphasises that presence is always mediated through sensory and bodily engagement with the environment (a point that will also be expanded later). There is then an affective quality to presence, and it is useful in this regard to recollect Spinoza (1996 [1677]) who opposed mind–body dualism, preferring instead a monism that today links mental goings-on with the body. This is at the root of understandings from the human-computer interaction community (explored below). Presence then is not just an abstraction, in part because once we intellectualise presence (such as through use of words) we have lost of grasp of what presence is. This is in line with Spinoza’s monism that tries to find a view of nature/God that combines thought and extension. Yet, despite words such as ‘grasp’, we don’t get to touch or hold presence either. Still, while hidden, presence moves us.

### Meaning versus presence-cultures

Expanding on the hidden and in-existent dimension of presence, literary scholar Gumbrecht (2004) argues that presence does not have a message, there is nothing to learn about it, and it is not reliant meaning. This will seem to be a strange choice of argument if one is not familiar with the ‘linguistic turn’ of the humanities (Rorty, 1967) and Derrida’s (1976 [1967]) argument that immediate presence is an illusion due to presence being that which is mediated by language and meaning. Gumbrecht’s argument is that presence *can* be separated from (a) meaning (that can be dissected and debated) and (b) learned cultural factors (that can be historicised and intellectualised). To do this Gumbrecht makes a distinction between ‘meaning-cultures’ and ‘presence-cultures’, defining the former as the interest in expert reading

and decoding. Meaning-cultures encompass any interest in signs, symbols, interpretation, contextualisation and intellectualising of media content. Presence-cultures, in contrast, are more *sensational* (implicitly drawing on Spinoza, subsequent affect theorists, and Merleau-Ponty’s insistence of embodied experience). Here, ‘capturing the tangibility of things is of utmost importance’ (Gumbrecht, 2006: 317). Presence by Gumbrecht is admirably crystallised as ‘what meaning cannot convey’, involving experiences of nature, art and other media that do not lend to deconstruction into other possible meanings. It also gives us one answer as to why presence is hidden: it is because even if we go looking for presence, explanations must be given in words that in turn belong to meaning-cultures.

This duality of categories of meaning and presence is of course *very* crude – something that Gumbrecht (2004) admits. Poets for example will argue (or show) that words may stimulate experiences of presence. A more significant risk for Gumbrecht’s is that presence-cultures looks like a nostalgic return to when one could confidently speak about experience without recourse to deconstruction, meaning, metaphor, and whether there such things as stable signifiers. For our interests though, in trying to understand the hidden dimension of presence as it applies to human-synthetic AI interaction and ghostbots, Gumbrecht’s willingness to separate presence and meaning is helpful. The problem of course is that a meaning and presence duality is an impossible one. It is a very tricky thing to disentangle meaning from presence. After all, things before us (such as a chair, sandals, iced water, or mixed reality in-game avatars) are not simply points of physical and immaterial extension, but they mean something to us. Semiosis is not so easily escaped. A better argument is to admit that meaning and presence are not easily separated, but also flag that presence is not reducible to meaning. This gets us to a place where presence has a characteristic of *excess* in that it often relies on meaning and semiosis but, again, it is not reducible to it. This allows us to foreground the role of presence, the existence of that excess, and that there is an in-existent but not readily spoken of dimension of life and things that moves us. The value of Gumbrecht’s presence-cultures is that through its over-simplicity it brings into focus that there is a dimension of experience we are missing in our accounts of media and technology that are squarely designed to engender new experiences of space, things, and synthetic others. This philosophical clearing work now allows us to focus on how this ‘excess’ is created, which is vital if we are to ask regulators of the digital and artificial intelligence (AI) industries to pay attention to presence.

## Technological approaches to presence

Having briefly considered (1) diverse accounts of presence that served to signal diverse understandings of presence, (2) differences between presence and meaning, and (3) that presence is the most obvious dimension of experience, the paper carries forward a specific understanding of presence. This is that presence involves bodily experience of things, others, and environments, and that while these experiences may draw upon complex meaning, they are not reducible to meaning alone. This paper argues that there is an important remainder or excess, which this paper wages to be a potentially powerful one in terms of how it may move, affect, and influence us in ways that are hard to articulate. However, while these effects may be hard to explain, causes are easier to identify. To this end, the paper now briefly turns to technological approaches to presence to identify how the experience of presence is stimulated.

### Being with, there, and in

Technological interest in presence can be traced at least as far as 1960s and early computational work on augmented and virtual reality (Heilig, 1961; Sutherland, 1965; Krueger, 1983; Fisher, 1986; Milgram & Kishino, 1994; Paterson, 2017; Harley, 2022). Technical work on virtual reality technologies has long flagged that presence is the reality element of virtual reality (Felton et al., 2021), and that presence is a defining feature of immersive media because ‘the feeling of presence is at the heart of all mediated vicarious experiences’ (Lee & Nass, 2003: 289). It is also based on *illusion*. Most obvious in VR, but also AI representations in concert spaces (Abba Voyage) and ghostbots (AI trained on patterns and data of the dead), experiences of presence through illusions are very real (Lombard and Ditton, 1997). This lends to a view of presence as the *sensation of realism* (Neuman, 1990), something I have discussed elsewhere in relation to ‘virtual realist governance’ (that sees virtual experience as powerful, and that this needs to be factored for in media and data protection governance) (McStay, 2023).

Presence is often spatial, in the sense of *being somewhere*, or of being proximal to something or someone. In relation to space and place, presence is generally considered in relation to experience. For instance, in work on measuring presence in virtual environments, McCall et al. define sense of place ‘to mean the direct everyday experience (phenomenology) of that place and one of the measures of a sense of place is presence – being there’ (2004: 783). This draws on Relph’s (1976) model of place that comprises physical setting, activities afforded by the place, and meanings attributed to the place. Related is telepresence that allows for manipulation of remote physical objects and the sense of being physically

present with virtual objects (Minsky, 1980; Fisher, 1986; Sheridan, 1992). Crucial for understanding of experience of presence is the extent to which human and virtual/tele-operations are (1) *isomorphic*, and (2) the degree to which there is real and virtual *tele-proprioception*. These distil to the degree of harmony (or jarring) of physical movement with digital representation; and to the design of virtual experience in relation to one’s bodily position, movement, effort, force and heaviness, in relation to digital things and spaces. Another way of expressing this is as *self-presence*, which represents the coherence between the actual self and a version of self (e.g., an avatar) presented in the virtual environment (Lee, 2004; Jicol et al., 2023a, b: 1).

In addition to the experience of ‘being there’ is the experience of *being in* synthetic environments. This entails sense of separateness from the real world and feelings of inclusion in the synthetic reality, which is based on perception of extension and scale. The sense of being in a synthetic space is enhanced by the range of human body parts required to execute an in-world task, the extent to which bodily motion is required (such as step-by-step mechanics of picking something up), the measure of a person’s actions, the amount of control a person has in-world, and the symmetry of kinetic force in real and in-world experiences (McMahan et al., 2016). As discussed elsewhere, experience of presence in mixed reality shows every sign of involving extensive surveillance, potentially involving brain-computer interfaces, biometrics, and the ‘physics’ of in-world environments as a means of heightening sense of presence (McStay, 2023). This is not innately bad, but the context of who owns the means to generate presence-as-being does matter, particularly in regard alignment of interests between individuals, society, and provider organisations (so far, likely corporations).

### Being together

There is a social aspect of presence – *co-presence*. Co-presence involves consideration of how one gauges another’s attitudes, feelings, or emotions (Kimmel et al., 2023: 2). This involves the question of how to enable social *empathy* in a digital context, just as we interpret the disposition of corporeal others to enable everyday social experience. This is necessarily a weak form of empathy involving reading, sensing, and reacting appropriately; which stands contrast to strong empathy that includes the above, but also involves human solidarity and wanting the best for a person (McStay, 2022; 2023). Microsoft’s *Xiaoice* (Little Ice) for example is a chatbot where presence through empathetic behaviour is conceived to human-synthetic relations, with engagement being the prime measure of success for Microsoft (Zhou et al., 2020). Design matters greatly in this regard, involving



factors of how synthetic personalities are constructed, consistency of voice and expressions with the personality, and mouth movements and the behaviour of avatar eyes (Kimmel et al., 2023). These are behaviours that will presumably become more important as people engage with intelligent photorealistic avatars (of people and synthetics), and we become more demanding of in-world interaction and less willing to suspend disbelief. As interaction becomes more sophisticated, this human-synthetic sociology will be fascinating to track, especially given early sociology's interest in understanding, and misunderstanding, that occurs in live eye gaze situations (Simmel, 1921). Gaze-based interaction for example can perceive, reveal, mislead, deflect, signal, and communicate all sorts of meaning, such as threat, dominance, submission, attractiveness, or seeking of approval (Cañigual & Hamilton, 2019).

### Emotion and presence

In studies of emotional experience in virtual spaces, *emotion* (especially fear) impacts on reported experience of presence (Jicol et al., 2023a). This signals a need to consider not only the objective question of what people perceive, but also the subjective and emotional matter of how they perceive it, along with questions about the desirability that these reactions will be pre-empted and logged for future interactions with content. Suspension of disbelief, co-presence, empathetic and emotion-based question are also joined by the *anthropomorphic* dimension of presence. This is the matter of how people attribute human characteristics to, or animate, digital things (Lee & Nass, 2003).

Closing this section of this paper, the section's goal has been to make philosophical understanding of presence more usable, especially those that are simultaneously interested in experience and the body, identify technically generated factors of presence, and progress towards a taxonomy through which this paper's case examples, and others outside of this paper, may be considered. Distilled, these factors are principles of feeling, being somewhere, immersion, telepresence, isomorphism, tele-proprioception, illusion, stimulation, realism, coherence, disbelief, co-presence, anthropomorphism, gaze, and heterogenous experience of presence due to different emotional experiences by people. Table 1 below details factors of presence, derived from humanities-based and technical literatures respectively. Collectively, these factors show that while presence is still hard to pin down, it is: (1) the palpable but inexistent part of a thing that touches us; yet (2) it is stimulated by definite means. These factors will inform coming discussion of presence in diverse contexts involving synthetic presence.

## Mamma Mia, it's time for Abba and Biggie Smalls

Having set terms of reference and identified factors of presence, I now turn to case examples to show why presence-based analysis is useful for consideration of AI and human-synthetic interactions. Presence is tangible, experiential, visceral and affective, giving presence a quality of force, if force is an influence that can change the behaviour of a person or object. Even if stimulated through illusive means, the effects have scope to be very real. Importantly, this *can* be fun and life affirming, as explored through the reinvention of Swedish pop group, Abba, below, although Abba themselves see dangers in new presence-based technologies.

### Abba

Abba took a risk when, having collaborated with Industrial Light and Magic, in May 2022 they launched Abba Voyage to tour digital versions of themselves in the physical world. Asked in 2023 on the BBC<sup>1</sup> show 'The Arts Interviews' about the risk of whether people would pay to come and see digital re-creations of Abba, singers Benny Andersson and Björn Ulvaeus explain that Voyage was an artistic success because 'people did not react like they'd gone to see a movie, but that they'd connected with the show'. From the point of view of presence (especially factors of realism, illusion, singularity and effacement), the Abba case is fascinating, with Andersson stating that it was '... as if we were there' but qualifies this with 'which we actually are', making the argument that people and things may partner in deep and fundamental ways. Ulvaeus picks up, adding they did not know what the nature of the connection with the audience would be, with people's intellects telling them Abba are not there, but their emotions telling them they are. The interviewer, Victoria Derbyshire, remarked that she'd been to see the show twice, remarking that '... it moved me, and I don't quite know why.' Ulvaeus responds 'that's the interesting thing, something happens'. Derbyshire progressed to suggest that Abba Voyage involves fake versions of themselves. Andersson retorts 'they're not fake, they're real', with Derbyshire responding, 'they're avatars, they're digital recreations, 2D versions,' leading Ulvaeus to comment that 'they're charged with us.' The view of presence as singularity is especially relevant here (convincingness), as is Nancy's [problematic] idea that plasticity (artistic creation of objects through materials) is a space to allow authentic being to occur. Authenticity in this regard (of Abba) connects with morality and volition, that must be

<sup>1</sup> Interview available at: <https://www.bbc.co.uk/iplayer/episode/p0fqhfhfn/the-arts-interviews-abba-the-interview>.

**Table 1** Factors of presence

Factors	Descriptors	Empirical questions
<i>Proximity</i>	Being spatially proximal to something or someone.	How is spatial perception being manipulated to enhance presence and interaction?
<i>Being in</i>	Sense of separateness from the real world and feeling of inclusion in the synthetic reality.	What is the experience of separateness, beyond sensory isolation? How is this bracketing-out of the physical world being put to work and to what end?
<i>Immersion</i>	Intensity of a person's cognitive, emotional, and sensory connections to an object.	How are environments being intelligently optimised to intensify experience? What is the nature of connection between person, object, space, or agent, and are there influences that a person is not aware of?
<i>Realism</i>	Adequacy of the experience so people are willing to suspend disbelief.	What role do realism and willingness to suspend belief play?
<i>Illusion</i>	Disappearance of technologies so people experience artifacts as if the experience were non-technological.	What is it that disappears, what appears natural, and what are the consequences of this, if any?
<i>Emotion</i>	Affecting of subjective experience of presence, including qualia.	What are expressed and reported feelings, and how do these contribute to the case being analysed?
<i>Isomorphism</i>	Degree of harmony of physical movement with digital representation	Are people, objects and chatbots behaviourally aligned?
<i>Tele-proprioception</i>	Naturalness of body position and movement, effort, force, and heaviness in relation to digital things and spaces.	Does body movement and effort feel natural?
<i>Telepresence</i>	Sense of being physically present with a virtual object to manipulate a remote physical object	What is the application and nature of telepresence, and seeing and controlling from afar?
<i>Self-presence</i>	Coherence between the actual self and extension of self (e.g., an avatar)	How comfortable are people with their extension/representation and does it adequately relay expressive behaviour?
<i>Co-presence (or being with)</i>	Social aspects (with mediated humans and synthetic others) of gauging the other's attitudes, feelings, or emotions.	By what means are (a) two or more mediated people able to read social cues, and (b) how do agents, bots and environments surveil social cues and expressions?
<i>Turn-taking</i>	Conversational aspects of generating presence, involving period and depth of intelligent conversation, and use of emotion and information about the person.	How is a person being prompted or nudged to extend and deepen conversation and make it more personal? Is there risk of over-reliance and/or dependencies?
<i>Anthropomorphism</i>	How people attribute human characteristics to, or animate, digital things.	What anthropomorphic factors are employed and triggered?
<i>Temporality</i>	How the past affects and lives on in the present.	How is the past carried into the virtual/augmented reality, how is this past still present, and how does this past (and its meanings) contribute to a contemporary sense of presence?
<i>Excess</i>	Dimensions of experience of things and others beyond meaning that affect people.	After technical and meaning-based questions, is there a holistic and affective remainder left to assess?
<i>Singularity</i>	Density (compression of all modes of stimulating presence) and the degree to which a thing or synthetic being is enlivened.	To what does the thing or synthetic other convincingly act as a unit for a person and with what consequences?
<i>Effacement</i>	Drawing of attention, defining of space, erosion of what would otherwise be there, and impact and interaction with that which is around a unit.	Are parts of the real receiving decreased attention or otherwise being effaced or affected by the synthetic?
<i>Social role</i>	Architected spaces and chatbot built with a purpose, e.g. companionship, work, administrative assistant, education, and more.	What role is the agent or bot playing in a person's (or group's) life and what positive or negative issues arise from this?

part of the experience of the presence or singularity. Volition also distinguishes the Abba event from deep fakery because the experience of presence is a sincere one. The conceptual language of presence as 'singularity' is close to Abba's, as Benny Andersson states that there will always be a problem with AI because of the question of 'Who is at the centre?', leading him to attribute Abba's success to people 'who mean what they're doing, and who put their heart into it, and talent', and concluding that if you don't have this 'centre' then 'what' are you listening to?

There is a Latourian feel to this, given Latour's (2005) interest in capacity to affect, blurring of object-hood and subject-hood, and the role of technology in everyday life. Critically, Latour is insistent on attention to how non-material processes in part shape technological objects. This porousness is clear in the case of Abba, where Abba (and all the human and creative elements that are suffused within the technical aspects of production) remain present in the concert event, even though the band members are not there. One can (and should) debate whether the generative avatars are still 'Abba' (especially given implications of such

a belief for ghostbot discussion to come), but what is clear is that the Abba's presence as a singularity is enlivened through both highly technical means, but also human sincerity. The creation of such representations may still be a deeply authentic act, especially as artists seek to guarantee a performative legacy after their death by helping to train and curate artificial intelligence systems. However, while presence as metaphysics has appeal because it engages us and allows loved artists (with their blessing and consent) to live on beyond their physical death, there is real risk in this understanding when it comes to the mediation of other members of the dead, whose volition is less clear.

### Rebooting the dead: hello Biggie smalls

The dead of course have already been rebooted, with the early 2020s seeing and hearing a rash of deepfakes. Frank Sinatra was resurrected to sing hip-hop track 'Gangsta's Paradise' and Johnny Cash sang the pop single 'Barbie Girl' (Nicolaou & Murgia, 2023), leading Google and Universal Music to talks about licensing artists' melodies and voices for songs generated by artificial intelligence. Overlapping interests in the future of music performance and presence, and the dead, is Biggie Smalls, otherwise known as the Notorious B.I.G., or as Christopher George Latore Wallace, a rapper who was shot in 1997. Exemplifying two factors of presence – temporality, where something from the past makes an appearance in the present, and proximity, where the experience of presence is spatially in relation to something or someone – Biggie Smalls appeared in the Metaverse in December 2022. In Meta's *Horizon Worlds*, Smalls rapped and sang in the guise of a photorealistic avatar, to a level of detail where it was difficult to see Smalls as a synthetic creation. Involving factors of being in, immersion, realism, illusion, isomorphism, co-presence, temporality and singularity, Basu (2022) reported the concert describing the level of detail involved, remarking on machine learning of Smalls' micro-expressions and skin pore level resolution.

While life-like representation has long been a feature of television special effects (and staged holograms in physical concerts, as with Abba), the potential to interact with Smalls, get close, and undergo novel experience of presence, is substantially different from other media. Indeed, Gumbrecht (2004: 91) coined 'presentification' to discuss how one should interact with the dead and past when they are brought into the present. His interest is historical and literary, but the observation that 'The desire for presence makes us image how we would have related, intellectually and with our bodies, to certain objects' (2004: 124) readily applies to current pop culture (Abba Voyage), the future of pop music and resurrection, and ghostbots encountered in mixed reality, as discussed below. The reaction of Smalls'

mother is also a significant, who stated "That's my Christopher" when the virtual twin of Smalls was shown to her (Basu, 2022). Indeed, we can cast forward to consider what people's first resurrection questions might of their own family members: "Is it them?" or, if convincing, "Is it you?" This raises complex and wrenching questions of bereavement in relation digital resurrection (Krueger & Osler, 2022), particularly regarding ambivalent emotions caused by synthetic presence, emotional dissonance, knowing that the agent is not real, realism of portrayal, and illusion of presence. Taken together, both Abba and Biggie Smalls raise a lesson for presence not anticipated in the first part of this paper that outlined philosophical and technical and dimensions of presence: where presence involves recreation, representation and even resurrection, sincerity matters. A risk however of truthfulness to the dead is scope for ontological blurring and confusion, especially when they can answer back.

### Ethical considerations of artificial resurrection

At the time of writing, large language models are reinvigorating interest in social chatbots and construction of synthetic personalities, with Meta, for example, designing prototypes for chatbots to have humanlike discussions with its nearly 4bn users (Murphy & Criddle, 2023). It is a very short hop to social chatbots trained on a lifetime of posting on a set of social media platforms, all owned by the same parent company. If real personal data is augmented by personal data from others like the original person, or synthetic data models trained to reproduce the characteristics and structure of data from the original person, then it is entirely feasible that companies such as Meta are already planning artificial resurrection, not least because Microsoft have given it consideration through a patent. While Microsoft's logging of a patent about the afterlife may simply be to block others entering a "market" (not an ideal way to refer to the afterlife), Microsoft was granted a patent in 2017 (expiring 2039) for 2D and 3D speech-enabled chatbots using the personal information of deceased people (Google Patents, 2017).

This is a growing topic, and ethicists have flagged scope for social and psychological harm of a nascent digital afterlife industry. These are issues of a 'thanatechnology' sort (Sofka, 1997; Sofka et al., 2012), with thanatology being the study of death and the practices associated with it (including that of legacy and the bereaved). Thanatechnology study has progressed to focus on social media, with Villaronga (2019) for example exploring the hazards of 'griefbots' that involve bots for the grieving based on a person's social media content, text messages and emails. Others have considered



deathlogging and the presence and memorialisation of the dead on the Web (Bourdelloie & Julier-Costes, 2016). Commodification is also a vital dimension of the digital afterlife sector, not least because (a) the risk of the digital afterlife being a vehicle for advertising, and (b) the need for guardrails to govern resurrection services (Hollanek et al., 2024). Some have flagged legal dimensions, including the right to deletion (Mayer-Schönberger, 2011), and connected issues of privacy (including the GDPR's 'right to be forgotten'), property, personal data and reputation, copyright implications, fraud, consumer protection, tort, product liability, and pornography laws, including non-consensual use of intimate images (Harbinja et al., 2023). To this end, the rest of the paper avoids recollecting all possible implications of griefbots, ghostbots or deadbots, instead considering ghostbots through the prism of presence, or the potential to feel connected to the dead through expertise in manipulating factors of presence, not least proximity, co-presence, realism, illusion, emotion, turn-taking, temporality, singularity, effacement, and social role.

### After-life: presence as reconfiguration of relationships

Buitelaar (2017) usefully argues that 'A person's interests have a goal that lies in the future and as argued, quite often, extend beyond his physical presence' (2017: 133). If presence in general shapes our interactions and experiences and influences our emotions and behaviour, the scope for ghostbots of family members (potentially recently deceased) is extraordinarily potent. One reason for potency is that these technologies draw on old and deep tendencies. Jiménez-Alonso et al. (2023) cite work on BCE Confucianism, when designated representatives played the deceased person (Elder, 2020) and, more recently, spiritualistic séances (Beischel et al., 2015). Neither mixed reality, social media or smartphone apps can claim to be the first media to interact with the dead. On more familiar media, Jiménez-Alonso et al. (2023) also cite work on use of the phone in Japan to leave text and voice messages for the deceased (Walter, 2015), online memorials and platforms entrusted to leave messages for the living (Dilmaç, 2018), and use of bar codes on gravestones to reanimate the dead (Bassett, 2015).

### Temporal firewalls to separate the recently dead from the living

A key set of moral and ethical questions are what does death mean, how should death be managed, and what can be learned from non-digital accounts of the presence of the dead among the living? One starting point is that the process of death is about disposing and separating the dead from

the living. That death is about separation does not instil assurance that any near-term presence of the recently dead through ghostbots is a good idea, not least because of emotional dissonance and scope to interrupt the process of separation-based grief. Disposing then is, arguably, in part about cutting adrift. Due to questions of bereavement in relation digital resurrection (Krueger & Osler, 2022) and clear potential for emotional dissonance created by the illusion of presence, this paper takes the view that a temporal firewall may be useful. It posits that while future generations may and perhaps should (for educational reasons) know their family history through ghostbot presence, a temporal firewall (meaning a break of time before resurrection) would prevent harm to those who have recently lost someone.

There is argument for and against this though, depending on one's view of death. For example, in addition to separation is a creative view of death, one based on re-configuration. Simpson (2018) cites work on cultures that feel a need to bring something into existence when a person otherwise dies. Drawing on Desjarlais (2016), Simpson posits that for the Yolmo of Nepal, their response to death is the 'creative act of making a new reality' and that 'the ritual processes that accompany the death of a person set in motion a re-configuration of relations between persons, objects, and memories'. Even in classical Western thought, the living and the dead are not as separate as might be supposed, with Heraclitus, the pre-Socratic thinker, noting that the living and the dead are never far apart (Simpson, 2018). In some accounts then, life and death are not binary propositions, with some seeing death as being part of everyday life (Das & Han, 2016). The usefulness of a brief turn to anthropologies of death is that death-as-separation is not a fixed premise. Rather, if death may be seen as re-configuration, it is an easy move to posit (and likely for some market) ghostbots as means to configure the presence of lives after death. Although this paper sees value in a temporal firewall to allow for the process of grief, it recognises that some cultures may take a different view. The remedy for particularism and relativism as it applies to the existence for ghostbots soon after death is to prove their positive personal and social value, through social science.

### Parameters of presence after death

There is then the question of how the presence of the dead should be constructed. One can see ready scope for personality parameters, either set by the dying, or by the living after the person in question has died. The dying for example might seek to enhance co-presence by slightly tweaking the empathy parameter of their personality model, with view to helping the living adjust to the reconfiguration of their presence. Grimmer, the healthy living might dedicate excessive

amounts of attention to their personality parameters and posterity. Conversely, there is currently little scope for the dead to be protected from the living, i.e., from the living who might change parameters of the dead's personality model in ways that they would not be comfortable with when alive, so raising questions of post-mortem harm.

Personality posterity is then the question of how presences should be constructed, represented, and remembered, and moral questions around curation. There is also the question of who should be building and hosting these presences. As highlighted in the technical discussion of factors of presence, a quality ghostbot is not a simple case of dumping personal data into a generative system. It would require care and curation, likely by the living pre-mortem, by those who love and know us post-mortem, and through paid-for expertise in synthetic presence. One can foresee a situation where trusted shamanic third-parties would collect and assemble lifetime data on behalf of the dying or the grieving, to ensure a respectful presence after physical death. This is especially so if true data portability were ever realised, providing digital heirs access to a lifetime of interactions of biometrics, postings, searches, likes, and connections.

The pivotal role of personal data, or post-mortem data about the dead, will need to be better handled than the current status quo, such as through extending human rights and legal provision (Davey, 2020). Harbinja et al. (2024) provide both an excellent overview of the legal dimensions of ghostbots and a sense of how the UK public see the issue of post-mortem privacy. By means of an online survey, they find that 'individuals place importance on privacy (and post-mortem privacy) and express a desire to exert control over their digital remains' (2024: 3). This brings into a view a social sense that privacy may not end with death. While online surveys are inexpensive and may involve a high sample, findings for unusual or complex matters require interpretive caution. There are a variety of problems associated with online surveys, not least that the types of people who opt-to do these surveys are to a degree Internet savvy, complex topics are hard to sufficiently explain, absence of a period to reflect and think through emotive questions, and that there is difficulty in writing non-leading questions. However, even given these problems, Harbinja et al.'s finding that respondents show preference to know and access the dead digital remains is a significant one. With their questions focusing on social media, this is not the same proposition of presence through ghostbots, potentially through mixed reality. Indeed, a key difference may be representation (memories and associations) versus presence (enabled by AI and display technologies), so there is scope for further empirical work on post-mortem existence.

Harbinja et al. (2023) see a route to post-mortem privacy through increasing interest in heirs of digital *property* and

identity. Their conclusion is that a person must request *not* to be assembled into a ghostbot. The opt-out approach is surprising, perhaps based on the view that there is public good in resurrection and carefully curated presences for future generations. This is supported by Schafer et al. (2023) who highlight that, assuming that good functioning post-mortem law is in place, future generations may learn about the past and historical information otherwise lost to a generation is saved. If this property-based view were deemed preferable, there is scope to revive ideas about personal digital identity management systems and collectively managed data trusts (Bakir et al., 2023). An uncomfortable upshot of a property-based view is that it sits uncomfortably with dignity-based accounts of privacy. Öhman and Floridi (2018) implicitly reject a property-based view, pointing out risks. They suggest 'that digital remains should be seen as the remains of an informational human body, that is, not merely regarded as a chattel or an estate, but as something constitutive of one's personhood.' This takes us back to the Abba-based discussion earlier, where Abba's Björn Ulvaeus spoke in Latour-like terms of fake, real and 'charged' presences, that signals a category challenge for future research to fully define real, fake, and in-between. For now, 'in-between' in this regard involves 'constitutive' in Öhman and Floridi's terms. Buiteelaar also explores this point through digital doubles (digital representations on the Internet) arguing that 'digital presence is no longer circumscribed by physical attributes but more by the content of the information the Internet user provides' (2018: 129). While there is a valuable dignity-based point being made through the argument that digital data is constitutive of one's personhood, this comes with an unexpected risk: that synthetic presence is mistaken for the presence of the once-living person ("Is that you?"). If the ghostbot industry is allowed to develop, there needs to be a firm separation between the synthetic and dead (the real). While there may be behavioural resemblance between the synthetic and the once living, they are otherwise of very different orders. Key of course is that even the most sophisticated AI system does not care about anyone, it does not have human-like empathy, and it does not have the interests of living family members in mind.

Also mitigating against third-party hosting of presences of the dead is that most start-ups are not around for long. Could they be trusted with digital remains? For example, the resurrection service Eternime went bust in only a few years, closing in 2020. As Bassett (2022) points out, this is a trouble fact when one considers the potential social role of the digital afterlives industry. One can then speculate how people would begrudgingly gravitate from artisanal offerings to large platforms (such as Meta and Microsoft) that have been in business for decades, to ensure continued presence. Would one risk otherwise? Another consequence is

monopoly and competition: would any region want to risk corporate failure of an afterlife service through stimulation of competition? Of course, motives of profit and dignity in transition and resurrection are unlikely to align. The idea of US technology platform bosses, using cradle-to-grave insights into human life, playing the role of a shamanic orchestrator (manager, coordinator, planner, and afterlife host), is not one this paper is keen on. There is then a rabbit-hole of *Black Mirror* harm and inequality<sup>2</sup>. For example, would Meta's resurrection service be tiered, with freemium services offering only basic avatar or advertising-supported options. Also, it should not be missed that, taken to a logical conclusion, presences of the dead would surpass the living, which would necessarily transform the identity and nature of platforms. The platform-based afterlife for presence of the dead gets even stranger when we begin to consider not just dead individuals, but families and generations, and how LLM-derived families would interact when the living visit, or when the dead appear in augmented reality.

### Common standards for resurrected presences

If the idea of a temporal firewall is accepted and there is educational merit for future generations to know family histories through ghostbot presences, or if there is a public good to be had in open history through the presence of the dead, this again raises questions of who should host and curate ghostbot presences. As noted, one option is the bespoke option, where one for example might have close engagement with a paid-for hosting company. This might allow for greater personalisation and perhaps for a more dignified process of artificial resurrection. The other is platform-based, that Holanek (2024) see as a potentially ad-based model. Maybe, but if this were based on a pauper freemium business model, this would certainly involve sharing of personal data regarding how living people engage with the ghostbot presence. A platform-based approach would also better allow for generation of synthetic data for other ghostbots, ongoing internal research on user-testing and improvement of factors of presence, and overall work on the efficacy of presence after death. Yet another option is a publicly backed resurrection service, potentially with a dedicated public government department. This has some appeal, but it requires trust in changing governments to deliver and maintain large information technology infrastructure services. As is the case with managing public health systems, one can envisage political debate about financial and energy costs of managing the afterlife, expensive new APIs, and whether taxes are being best spent. There is, though, a more open approach and decentralised approach to presence after death. We are

firmly in though-experiment territory here, considering open-source approaches to configure the presence of lives after death, where source code and models to enable training and hosting of presences would be freely available. If greater alignment with wider regional norms and ethics were required, the Institute of Electrical and Electronics Engineers (IEEE) or International Organization for Standardization (ISO) might develop an international open common standard, to ensure that post-mortem identities are portable and inter-operable, and to provide detailed guidance on how to efficiently host (as the energy costs would be huge) and build relevant factors of ghostbot presence (proximity, co-presence, realism, illusion, emotion, turn-taking, temporality, singularity, effacement, and social role). Such a common design for the afterlife would be quite an undertaking, also requiring national contributions of Gross-Domestic Product (GDP) to the international upkeep of the afterlife. Reaching global moral and spiritual agreement among technologists, philosophers, theologians, legal experts, and economists, among others, would be challenging though.

### Conclusion

Questions of emotion, affect, and influence are well-trodden areas in critical studies of AI-based digital culture, but the concept of presence remains less explored. This is likely because presence, while palpable, is highly oblique. Due to growing interest in mixed reality, advancements in visual and spatial technologies, and improvements in natural language interaction, this paper has aimed to bring the nature and significance of presence into sharper focus. This is particularly relevant when assessing the properties and implications of emerging human-synthetic interactions, especially those involving the presence of the deceased.

The Abba Voyage tour demonstrated that presence may enhance art positively and joyfully, but it also raised ethical questions about the need for volition and sincerity when artists are digitally replicated – a point then discussed through Biggie Smalls and the celebrity dead. Abba's Björn Ulvaeus also made an important point when he said their neural network was “charged with us,” suggesting a quasi-subjectivity. Future arguments about the life-status of ghostbot presences will be based on quasi-subjectivity and functionalism, which holds that mental states and consciousness are ultimately reducible to information and patterns (cf. Dennett, 1991). If a modicum of life after death is even philosophically possible, one only need consider self-curation of social media profiles today to gauge how intense and extensive self-training would be for one's post-mortem presence. A glaring danger in Ulvaeus' view is that such blurring introduces ambiguity of whether a ‘charged’ ghostbot is at

<sup>2</sup> *Black Mirror* is a fictional dystopian television show created in 2011 by Charlie Brooker that considers current and emerging technology.

least in part the real family member. While computational theories of mind have long been debated by philosophers of AI, there is risk that caricatures of functionalist arguments may legitimise a belief that a trained ghostbot presence has an undead status.

Given the significance of presence in human-synthetic interaction, it is imperative that regulatory bodies focusing on media, data protection, and AI governance address several key considerations. First, the factors influencing presence—such as realism and co-presence—must be assessed for their impact on human experience and perception. Good governance is necessary to ensure that synthetic agents, especially those mimicking deceased individuals, are created, and used, with respect and sincerity. If ghostbots do scale into something more socially significant than they are in 2024, in addition to vital legal questions posed by Harbinja et al. (2024), is the question of who should design the afterlife and what protocols should it be informed by? These should be open, to allow scope for portability of post-mortem identities and continued existence. The paper ends though by flagging one specific recommendation, a temporal firewall so future generations may engage in ancestry and history through synthetic presences of the dead, while preventing harm to the living who have recently lost someone.

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## References

- Agamben, G. (1993). *The coming community*. University of Minnesota Press.
- Arendt, H. (1958). *The Human Condition*. University of Chicago Press.
- Bakir, V., Laffer, A., & McStay, A. (2023). *Blurring the moral limits of data markets: Biometrics, emotion and data dividends*. *AI & Soc.* <https://doi.org/10.1007/s00146-023-01739-5>.
- Bassett, D. J. (2022). The future of digital death. *The Creation and Inheritance of Digital Afterlives*. *Palgrave studies in the future of humanity and its successors*. Palgrave Macmillan. [https://doi.org/10.1007/978-3-030-91684-8\\_7](https://doi.org/10.1007/978-3-030-91684-8_7)
- Basu, T. (2022). I just watched Biggie Smalls perform 'live' in the metaverse, *Technology Review*. Retrieved October 12, 2023, from <https://www.technologyreview.com/2022/12/16/1065393/biggie-smalls-metaverse/>.
- Bourdelloie, H., & Julier-Costes, M. (2016). Deathlogging: Social life beyond the grave. In S. Selke (Ed.), *Lifelogging*. Springer VS. [https://doi.org/10.1007/978-3-658-13137-1\\_7](https://doi.org/10.1007/978-3-658-13137-1_7)
- Brentano, F. (1995 [1874]). *Psychology from an empirical standpoint*. Routledge.
- Buitelaar, J. C. (2017). Post-mortem privacy and informational self-determination. *Ethics and Information Technology*, 19, 129–142. <https://doi.org/10.1007/s10676-017-9421-9>.
- Cañigüeral, R., & Hamilton, A. F. C. (2019). The role of eye gaze during natural social interactions in typical and autistic people. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.00560>
- Das, V., & Han, C. (Eds.). (2016). *Living and dying in the contemporary world: A compendium*. University of California Press.
- Davey, T. (2020). *Until Death Do Us Part: Post-Mortem Privacy Rights for the Ante-Mortem Person* (PhD Thesis, University of East Anglia 2020). [https://ueaeprints.uea.ac.uk/id/eprint/79742/1/TINA%20DAVEY.%20THESIS%20FINAL%20\(1\).pdf](https://ueaeprints.uea.ac.uk/id/eprint/79742/1/TINA%20DAVEY.%20THESIS%20FINAL%20(1).pdf).
- Dennett, D. C. (1991). *Consciousness explained*. Little, Brown and Company.
- Derrida, J. (1976 [1967]). *Of Grammatology* (G. C. Spivak, Trans.). Johns Hopkins University Press.
- Desjarlais, R. (2016). A good death recorded. In V. Das, & C. Han (Eds.), *Living and dying in the contemporary world: A compendium*. University of California Press.
- Felton, W. M., Jeffery, C., Lew, R., & Youngvorst, L. (2021). *Presence in virtual environments: visual factors and measure convergence*. Ph.D. Dissertation. University of Idaho, USA. Advisor(s) Thorsteinson, Todd. Order Number: AAI28320507.
- Fisher, S. S. (1986). Telepresence master glove controller for dexterous robotic end-effectors. *Proceeds of SPIE 76 Intelligent Robots and Computer Vision*. <https://doi.org/10.1117/12.937753>
- Ghost, R., & Kleinberg, E. (Eds.). (2013). *Presence: philosophy, history, and cultural theory for the twenty-first century*. Cornell.
- Google Patents (2017). Creating a conversational chat bot of a specific person. <https://patents.google.com/patent/US10853717B2/en>.
- Gumbrecht, H. U. (2004). *Production of presence: What meaning cannot convey*. Stanford University Press.
- Gumbrecht, H. U. (2006). Presence Achieved in Language (with special attention given to the Presence of the past). *History and Theory*, 45(3), 317–327. <https://doi.org/10.1111/j.1468-2303.2006.00367.x>.



- Harbinja, E., Edwards, L., & McVey, M. (2023). Governing ghostbots. *Computer Law & Security Review*, 48, Article 105791. <https://doi.org/10.1016/j.clsr.2023.105791>
- Harbinja, E., Morse, T., & Edwards, L. (2024). Digital Remains and Post-mortem Privacy in the UK: What do users want? BILETA 2024 Conference Paper, SSRN. <https://doi.org/10.2139/ssrn.4813651>.
- Harley, D. (2022). This would be sweet in VR: On the discursive newness of virtual reality. *New Media & Society*, 0(0). <https://doi.org/10.1177/14614448221084655>.
- Heidegger, M. (2011 [1962]). *Being and time*. Harper & Row.
- Heilig, M. (1961). *Sensorama simulator*. Google Patents. <https://patents.google.com/patent/US3050870A/en>
- Hollanek, T., Nowaczyk-Basińska, K., & Griefbots (2024). Deadbots, Postmortem avatars: On responsible applications of generative AI in the Digital Afterlife Industry. *Philos Technol*, 37, 63. <https://doi.org/10.1007/s13347-024-00744-w>.
- Husserl, E. (1970 [1900]). *Logical investigations*. Routledge.
- Irigaray, L. (1985). *Speculum of the other woman*. Cornell University Press. G. C. Gill.
- Jicol, C., Clarke, C., Tor, E., Dakin, R. M., Lancaster, T. C., Chang, S. T., Petrini, K., O'Neill, E., Proulx, M. J., & Lutteroth, C. (2023a). *Realism and Field of View Affect Presence in VR but Not the Way You Think*. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23). Association for Computing Machinery, New York, NY, USA, Article 399, 1–17. <https://doi.org/10.1145/3544548.3581448>.
- Jicol, C., Clarke, C., Tor, E., Yip, H. L., Yoon, J., Bevan, C., Bowden, H., Brann, E., Cater, K., Cole, R., Deeley, Q., Eidinow, E., O'Neill, E., Lutteroth, C., & Proulx, M. J. (2023b). *Imagine That! Imaginative Suggestibility Affects Presence in Virtual Reality*. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23), April 23–28, 2023, Hamburg, Germany. ACM, New York, NY, USA, 11 pages. <https://doi.org/10.1145/3544548.3581212>.
- Jiménez-Alonso, B., de Luna, B., & Griefbots, I. (2023). A new way of communicating with the dead? *Integr Psych Behav*, 57, 466–481. <https://doi.org/10.1007/s12124-022-09679-3>
- Kimmel, S., Jung, F., Matvienko, A., Heuten, W., & Boll, S. (2023). *Let's Face It: Influence of Facial Expressions on Social Presence in Collaborative Virtual Reality*. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23). Association for Computing Machinery, New York, NY, USA, Article 429, 1–16. <https://doi.org/10.1145/3544548.3580707>.
- Krueger, J., & Osler, L. (2022). Communing with the dead online: Chatbots and continuing bonds. *Journal of Consciousness Studies*, 29, 222–252.
- Krueger, M. (1983). *Artificial reality*. Addison-Wesley.
- Latour, B. (2005). *Reassembling the Social: An introduction to actor-network-theory*. Oxford University Press.
- Lee, K. M. (2004). Presence, explicated. *Communication Theory*, 14(1), 27–50. <https://doi.org/10.1111/j.1468-2885.2004.tb00302.x>.
- Lee, K. M., & Nass, C. (2003). *Designing social presence of social actors in human computer interaction*. In Proceedings of the SIG-CHI Conference on Human Factors in Computing Systems (CHI '03). Association for Computing Machinery, New York, NY, USA, 289–296. <https://doi.org/10.1145/642611.642662>.
- Levinas, E. (1981). *Otherwise than Being or Beyond Essence* (A. Lingis, Trans.). Martinus Nijhoff Publishers.
- Lombard, M. (1997). T. Ditton (Ed.), At the heart of it all: The Concept of Presence. *Journal of Computer-Mediated Communication* 3 2 1 <https://doi.org/10.1111/j.1083-6101.1997.tb00072.x> JCMC321.
- Mayer-Schönberger, V. (2011). *Delete: The Virtue of forgetting in the Digital Age*. Princeton University Press.
- McCall, R., O'Neil, S., & Carroll, F. (2004). *Measuring presence in virtual environments*. In CHI '04 Extended Abstracts on Human Factors in Computing Systems (CHI EA '04). Association for Computing Machinery, New York, USA, 783–784. <https://doi.org/10.1145/985921.985934>.
- McKirahan, R. D. (1996). *Philosophy before Socrates: An introduction with texts and commentary*. Hackett Publishing Company.
- McMahan, R. P., Lai, C., & Swaroop, K. P. (2016). Interaction fidelity: The uncanny valley of virtual reality interactions. In S. Lackey, & R. Schumaker (Eds.), *Virtual, augmented and mixed reality* (pp. 59–70). Springer.
- McStay, A. (2022). *Replika in the metaverse: The moral problem with empathy in 'It from Bit'*. *AI Ethics*. <https://doi.org/10.1007/s43681-022-00252-7>
- McStay, A. (2023). *The metaverse: Surveillance physics, virtual realist governance, and the missing commons*. *Philosophy & Technology*. <https://doi.org/10.1007/s13347-023-00613-y>
- Merleau-Ponty, M. (2002). [1945] *Phenomenology of Perception*. Routledge.
- Milgram, P., & Kishino, F. (1994). A taxonomy of mixed reality virtual displays. *IEICE Transactions of Information Systems*, E77–D(12), 1–15.
- Minsky, M., & Telepresence (1980). *Omni*, 45–51. <https://web.media.mit.edu/~minsky/papers/Telepresence.html>.
- Murphy, H., & Criddle, C. (2023). Meta prepares chatbots with personas to try to retain users, *Financial Times*. Retrieved October 12, 2023, from <https://www.ft.com/content/fa76c8ce-cdfd-458c-baec-73dceb2d2ad5>.
- Nancy, J-L. (1993). *The birth to presence*. Stanford University Press.
- Neuman, W. R. (1990). *Beyond HDTV: Exploring subjective responses to very high definition television*. A Research Report for GTE Labs and the TVOT Consortium. MIT.
- Nicolaou, A., & Murgia, M. (2023). Google and Universal Music negotiate deal over AI 'deepfakes', *Financial Times*. Retrieved October 12, 2023, from <https://www.ft.com/content/6f022306-2f83-4da7-8066-51386e8fe63b>.
- Öhman, C., & Floridi, L. (2018). An ethical framework for the digital afterlife industry. *Nature Human Behavior*. <https://doi.org/10.1038/s41562-018-0335-2>
- Paterson, M. (2017). On haptic media and the possibilities of a more inclusive interactivity. *New Media & Society*, 19(10), 1541–1562. <https://doi.org/10.1177/1461444817717513>.
- Relph, E. (1976). *Place and placelessness*. Pion Books.
- Rorty, R. (Ed.). (1967). *The linguistic turn: Recent essays in philosophical method*. University of Chicago Press.
- Schafer, B., Briggs, J., Moncur, W., Nicol, E., & Azzopardi, L. (2023). What the Dickens: Post-mortem privacy and intergenerational trust. *Computer Law & Security Review*, 49, 105800. <https://doi.org/10.1016/j.clsr.2023.105800>.
- Sheridan, T. B. (1992). Musings on telepresence and virtual presence. *Presence: Teleoperators and Virtual Environments*, 1(1), 120–126. <https://doi.org/10.1162/pres.1992.1.1.120>
- Simmel, G. (1921). Sociology of the senses: Visual interaction. In R. E. Park, & E. W. Burgess (Eds.), *Introduction to the science of sociology* (pp. 356–361). University of Chicago Press.
- Simpson, B., & Felix Stein. (2018). Death. In *The Open Encyclopedia of Anthropology*, edited by. *Facsimile of the first edition in The Cambridge Encyclopedia of Anthropology*. Retrieved October 12, 2023, from <https://doi.org/10.29164/18death>.
- Sofka, C. J. (1997). Social support 'Internetworks,' caskets for sale, and more: Thanatology and the information superhighway. *Death Studies*, 21, 553–574.
- Sofka, C. J., Cupit, I. N., & Gilbert, K. R. (2012). *Dying, death, and grief in an online universe*. Springer Publishing Company.
- Spinoza, B. (1996). [1677]. *Ethics*. Penguin.



- Sutherland, I. E. (1965). *The Ultimate Display*. Retrieved October 12, 2023, from <http://worrydream.com/refs/Sutherland%20-%20The%20Ultimate%20Display.pdf>.
- Villaronga, E. F. (2019). I love you, said the Robot: Boundaries of the use of emotions in human-robot interactions. In H. Ayanoglu, & E. Duarte (Eds.), *Emotional design in human-robot interaction* (pp. 93–110). Springer. [https://doi.org/10.1007/978-3-319-96722-6\\_6](https://doi.org/10.1007/978-3-319-96722-6_6).
- Zhou, L., Gao, J., Li, D., & Shum, H. Y. (2020). The design and implementation of Xiaoice, an empathetic social chatbot, *Computational Linguistics*, 46(1): 53–93. [https://doi.org/10.1162/coli\\_a\\_00368](https://doi.org/10.1162/coli_a_00368) Accessed 3 Oct 2022.

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