

The digital uncanny and ghost effects

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- 1 Ernst Jentsch, 'Zur Psychologie des Unheimlichen', trans. Roy Sellars, *Angelaki*, vol. 2, no. 1 (1995), pp. 179–96.
- 2 Sigmund Freud, 'The "uncanny"', in *The Standard Edition of the Complete Psychological Works of Sigmund Freud, Volume XVII*, trans. and ed. James Strachey (London: Hogarth, 1955), pp. 217–56.
- 3 As John Fletcher points out, in 'Freud, Hoffman, and death-work', *Angelaki*, vol. 7, no. 2 (2002), p. 127, 'Freud is concerned to argue polemically against the location of [Hoffman's story's] uncanny effect in the figure of "the living doll" Olympia [...] Freud's alternative reading privileges instead the Sandman (who as Freud points out gives his name to the story) over Olympia the doll-woman, as the source of the feeling of the claims, is the refiguration in fantasy of the universal male Oedipal situation of childhood and its accompanying castration complex [...]'
- 4 This reference to the factor of repression enables us, furthermore, to understand Schelling's definition of the uncanny as something which ought to have remained hidden but has come to light. See Freud, 'The "uncanny"', pp. 222–23.

Technology is at the heart of the debate over what constitutes the 'uncanny'. Freud opens his classical text on the subject by questioning Ernst Jentsch's claim that the uncanny is produced by a 'doubt as to whether an apparently living being really is animate and, conversely, doubt as to whether a lifeless object may not in fact be animate'.¹ What Jentsch is referring to is the character of Olympia in E. T. A. Hoffmann's story 'Der Sandmann' – a lifelike automaton that confounds the protagonist (Nathaniel), who falls in love with it. In an attempt to overturn Jentsch's view that humans automatically take automata to be human when they see them behave like humans, Freud develops a different reading of Hoffmann's short story, focusing not on Olympia but on the 'theme of the Sand-Man who tears out children's eyes'.² This manoeuvre allows Freud to reconnect the uncanny to the processes of repression, and thus to castration anxiety.³ To Freud the uncanny is not a direct reaction to mechanical devices but a neurological (internalized) form of automaticity that is realized as an aesthetic or affective experience – *deja vu*, the appearance of a *doppelganger*, delusions of grandeur, paranoid behaviours, and so on. The uncanny is driven by the compulsion to repeat, and that compulsion is automatic. Rather than a simple reaction to technology, the uncanny is an intentional, embodied (even if symptomatic) response to 'something which ought to have remained hidden but has come to light'.⁴

This debate has been revisited and reenacted numerous times throughout the twentieth and early twenty-first centuries – from Masahiro Mori's study of our responses to dolls and robots that are too lifelike,⁵ to the discourse of remediation that traces the effects of bringing back to life or capturing the image of death in a film or photograph, on a phonograph

5 Masahiro Mori's 'Uncanny valley', *Energy*, vol. 7, no. 4 (1970), pp. 33–35, warned that robots should not be made too similar to real humans because such robots can fall into the 'uncanny valley', where too high a degree of human realism evokes an unpleasant impression in the viewer. See also Donald Norman, *Emotional Design: Why We Love (or Hate) Everyday Things* (New York, NY: Basic Books, 2004); Jasia Reichardt, *Robots: Fact, Fiction and Prediction* (Harmondsworth: Penguin Books, 1978). Mori called this negative peak the uncanny valley, by analogizing the shape of his graph to a mountain. Along the abscissa of Mori's graph, not only robots but also various kinds of humanlike artificial objects, such as dolls and prosthetic hands, were sorted in subjective order of degree of realism. Thus Mori's hypothesis is not limited to robots but is also applicable to any type of artificial humanlike object.

or other recording media that can be replayed (or reanimated). Something has changed, however, with the rise of digital communication and transmission, distributed networks, smart devices, learning machines and immersive 3D environments. These developments have triggered a new wave of interest in the uncanny, but they have also elicited a profound transformation of that concept away from both Freud's and Jentsch's formulations. The digital uncanny builds on the uncanny's relation to automation and repetition, but does not take the form of an emotional intensity or an embodied perception as differently described by both Freud and Jentsch. Rather than hinging on an individual's internalization of affect or emotional intensity, the digital uncanny exemplifies an irresolvable uncertainty as to whether or not those very affects and intensities amount to predesigned responses or programmed gestures triggered by various forms of algorithmically generated media stimulation. It is not about Nathaniel mistaking Olympia for a woman – a mistake that is necessarily rooted in the assumption that there is a distinction between humans and automata – as much as it is about ungrounding our assumptions concerning Nathaniel's humanness and Olympia's automaticity. Unlike the uncanny of Freud (or even Jentsch), the digital uncanny is neither just an intellectual uncertainty nor a troubling affective experience tied to the return of repressed past experiences. Instead it anticipates those practices, responses, experiences or expressions that we have used to distinguish the human from the nonhuman – practices such as thinking, expressions such as empathy, and affective or embodied experiences such as consciousness. It also deflects attention away from the individual and the alleged uniqueness of her experiences.

Digital technologies have provoked a litany of uncertainties about the status of the human: where does embodiment take place if it inhabits so many screening devices that present it as virtual and untimely; how have information and communication technologies blurred the line between the human and the technologies that mediate what it means to be human; and what is the role of affect when emotions can be predicted, simulated and controlled? The digital doubles and redoubles these uncertainties already present in earlier technologies, asking us to examine how screening, tracking and data-capturing technologies have reconfigured our various experiences (social engagement, political activism, knowledge production, tuning in, participation, and so on), and also our understanding of subjectivity, embodiment and experience.

This essay examines the interactive and experimental art works of Rafael Lozano-Hemmer, Bill Viola, Simon Biggs, Sue Hawksley and Garth Paine to explore the relation between motion interfaces, surveillance tracking and sensing technologies. These interactive installations elicit uncanny visceral effects, at the same time challenging us to think about how communication technologies often double as surveillance technologies, confusing the role of a user-activated display with that of an automated tracking and profiling system. Lozano-

6 As Anneleen Masschelein points out in 'A homeless concept shapes of the uncanny in twentieth-century theory and culture', *Image and Narrative*, no. 5 (2003), 'only a few attempts have been made to examine the notion of the uncanny from a clinical perspective: Bergler (1934), Grotjahn (1948) and Lacan in his unpublished seminar on anxiety (1962–1963)'. The most influential contributions to the critique of the Freudian uncanny are: Tzvetan Todorov, *The Fantastic: A Structural Approach to a Literary Genre* (Ithaca, NY: Cornell University Press, 1975); Sarah Kofman, 'Le double e(s)t le diable: L'inquiétante étrangeté de L'Homme au sable (Der Sandmann)', in *Quatre romans analytiques* (Paris: Galilée, 1973); Hélène Cixous, 'Fiction and its phantoms: a reading of Freud's "Das Unheimliche"', *New Literary History*, vol. 7, no. 3 (1976), pp. 525–48; Neil Hertz, 'Freud and the Sandman', in *Textual Strategies: Perspectives in Post-Structuralist Criticism*, ed. Josué V. Harari (Ithaca, NY: Cornell University Press, 1979).

7 Mikel Dufrenne, *The Phenomenology of Aesthetic Experience*, trans. Edward S. Casey (Evanston, IL: Northwestern University Press, 1973), p. 379. Dufrenne argues that the aesthetic experience produces affect or 'feeling [that] is pure because it is a capacity of receptivity, a sensibility to a certain world, and an aptitude for perceiving that world'. Here feeling is linked with knowing, and it is through feeling that the knowing subject is made open to a world picture. 'Art returns us to the genesis of the world; the world that appears naturally completed and self-evident becomes, through artistic reflection, our world, the product of disclosure and synthesis completed by a subject who is nothing other than this forming power'.

8 Claire Colebrook, *Deleuze and the Meaning of Life* (London: Continuum, 2010), p. 95. Colebrook points out that in such understanding of art, 'There is then a vitalist assumption regarding aesthetic value; art is

Hemmer's *Reporters with Borders* (2008) and *Close-up* (2006), Viola's *Quintet of the Astonished* (2000), and Biggs, Hawksley and Paine's *Bodytext* (2010) produce a sense of indeterminacy, and in the process rework the uncanny as a concept. These works are not concerned with whether the user or spectator can or cannot determine if something is animate or inanimate. Rather they confront users and spectators with the problem of determining whether or not their responses or images are their own or just as programmed as those of the machines they interact with. By analyzing these four artworks I would like to show how they help us rethink the uncanny.

'The uncanny' is an anomaly in Freud's oeuvre: it is based neither on a case study nor on a general study of human behaviour. The uncanny is instead built on a mixture of Freud's own personal experiences (that go unanalyzed in his text), an etymology of the word *Unheimliche* (the uncanny) that he traces back to *heimlich* (homely, native), and to his reading of Hoffmann's 'Der Sandmann' as an Oedipal narrative. Freud goes on to define the uncanny as an aesthetic experience, thus making it ungraspable through the clinical terms that Freud himself utilizes in his other case studies.⁶ It is the combination of the two conditions (aesthetic and experience) that makes the uncanny neither a set form of representation (aesthetic) nor a precise symptomatic reaction (the return of repressed experiences).

Aesthetic experience has traditionally been understood as the condition for the emergence of new forms of subjectivity. Feeling provides the passage between presence and representation, installing in the subject 'a sensibility to a certain world, an aptitude for perceiving that world'.⁷ It is aesthetic experience that produces both a subject and a world as a reflection of that experience. But the uncanny undermines stable subject positions and thus the possibility of stable meaning. The uncanny, therefore, poses a problem as to how we understand aesthetic experience, since it questions to whom or what we attribute such an experience if we can no longer identify a subject. Given that our access to the uncanny has often been through the senses, the digital uncanny only complicates this problem of instability by presenting the senses as feedback rather than conscious reflection. Psychoanalytic thinking, however, often overlooks the role played by technology and mediation in the production of uncanny effects in favour of grounding the uncanny on castration truth – that is, grounding the uncanny in the discourse of the subject. In his work on the concept of repetition and difference, Gilles Deleuze points out that 'The traditional theory of the compulsion to repeat in psychoanalysis [...] is thereby subordinated to the requirements of simple representation, from the standpoint of its realism, materialism and subjectivism'.⁸

Freud's attempt to read the uncanny as an expression of both ungraspable unconscious desires and the unconscious logic of Oedipal desire reveals the underlying tension between what Jacques Rancière

good if it activates the subject's forming powers'.

- 9 See Jacques Rancière, *Aesthetic Unconscious* (Cambridge: Polity Press, 2010). Oedipus as a tragic subject that 'presupposes a regime of thinking about art in which art is defined by its being the identity of a conscious procedure and an unconscious production, of a willed action and an involuntary process [...] But there are two contrary ways to think about this identity: as the immanence of logos in pathos, of thought in non-thought, or inversely, as the immanence of pathos in logos, of non-thought in thought' (p. 28).
- 10 Jacques Rancière, *Aesthetics and Its Discontents*, trans. Steven Corcoran (Cambridge: Polity Press: 2009), p. 100. See also Stephen Zepke, 'Contemporary art – beautiful or sublime: Kant in Rancière, Lyotard and Deleuze', unpublished paper, *Academia*, <https://www.academia.edu/6464972/Contemporary_art_-_beautiful_or_sublime_Kant_in_Ranciere_Lyotard_and_Deleuze> accessed 12 December 2015. Zepke demonstrates how Rancière's concept of dissensus, unlike Lyotard's and Deleuze's notion of the sublime, has been criticized for 'a lack of any account of political economy, and it is true that he does not clearly articulate how artistic dissensus might effectively engage of the commodification of visual culture'. Zepke points out that Rancière's insistence on the fraternity of the human, common-sense, cannot account for the eruption of the inhuman or posthuman in the human.
- 11 See Andy Clark, *Being There: Putting the Brain, Body and World Together Again* (London: Bradford Books, 1998), pp. 170–95. Clark argues that the body and technology become one and the mind adapts to technologies. The body is not just grounded in social relations, it is also an instrument.
- 12 Vannevar Bush, in 'As we may think', *The Atlantic Monthly*, July 1945, argued that human creativity operated as an associative practice while calculation and digital technologies were

sees as two opposing interpretive practices – one that uses logic to understand unconscious desires (logos) and the other that demonstrates how unconscious desires subvert such attempts to apply logic to the unconscious (pathos).⁹ For Rancière, Freud's attempt to bridge the unintelligible (pathos, the corporeal logic of faces and voices) with intelligible (logos, the logic of verbal discourse) through psychoanalytic interpretation is unsuccessful since it tries to impose a discursive practice onto an aesthetic expression.

But Freud is not alone in his attempt to contain the aesthetic experience of the uncanny by making sense of it. Aesthetic experience, for Rancière, becomes the condition for new forms of subjectivity rather than the return to old ones (like the Oedipal narrative). But Rancière also steers aesthetic experience away from irresolvable tensions (what he calls 'dissensus') into a 'dissensual common sense' – a tension that produces a new unity of shared sensibilities and feelings of commonality. Rancière defines 'dissensus' as a rather conventional rupture between human thought and human sense that can either be 'reduced to the conflict between appearance and reality, or a new consensus [...] for transforming the appearances of art into the realities of common life [...] transforming the world into the product and mirror of human activity'.¹⁰ Like the uncanny, dissensus is also the aesthetic experience of interruption, yet this rupture is presented as transformative rather than regressive. That is, it is designed to form the future rather than to mediate our relation to the past. This is still a move that seeks to shift what is originally conceived of as radically singular (aesthetic experience) to something that is commonly understood (aesthetics as a general category).

In Rancière, as in Freud before him, technology disappears or is simply assumed to be an 'extension of man' or an extension of the mind.¹¹ Even if the relationship of creativity to technology was predicated on the belief that technology was designed to be 'in the service of man', when human activity or creativity interfaces with or requires technology it establishes a symbiotic relationship – the dependency of the human on technology and technology on the human.¹² The digital uncanny emerges with the confrontation of the human with massive empirical datasets that have the capacity to anticipate practices, responses, experiences or expressions that we have used to distinguish the human from the nonhuman – thinking, empathy and consciousness. Works like *Bodytext*, *The Passions and Reporters with Borders* help us to bypass a human-centred perspectival mode of viewing, but at the same time they do not simply assume machine vision to take over human and posthuman perception. They simultaneously challenge the idea of a unified subject (whether inhuman, nonhuman or posthuman) as well as notions of singularity or renewed assertions of humanism.

The uncanny stimulates 'anguish of the mind haunted by a familiar and unknown guest' – a guest that produces delusions but makes us

repetitive and recursive. Hence he separated repetitive thought from creative thought and suggested that digital technologies would allow humans more time to create. This argument was repeated in J. C. R. Licklider, 'Man-computer symbiosis', *IRE Transactions on Human Factors in Electronics*, vol. 1, no. 1 (1960), pp. 4–11. Licklider, like Bush, proposes that digital technologies have the potential to augment human creativity by providing real-time thinking, which would take over the decision-making practice by being able to evaluate and calculate all possible responses to action on the battlefield in real-time. In the process of ridding humanity of labour that is simply recursive, Bush and Licklider divide those types of serial operations that are performed more efficiently by digital technologies from innovation and creativity. Hence in the early 1950s Alan Turing and John von Neumann were already arguing that machines were outstripping human thought.

13 Jean-François Lyotard, *The Inhuman*, trans. G. Bennington and R. Bowlby (Cambridge: Polity Press, 1991), p. 2.

14 Richard Coyne, 'Thinking through virtual reality: place, non-place and situated cognition', *Techné: Research in Philosophy and Technology*, vol. 10, no. 3 (2007), pp. 26–38.

15 *Ibid.*, p. 3.

16 Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York, NY: Harper and Row, 1977), p. 23.

17 Alexander Galloway, *The Interface Effect* (Cambridge: Polity Press, 2012), p. 74.

think.¹³ But unlike Freud's uncanny, this guest is not some repressed version of ourselves (our alter egos), but a realization that our behaviours, response and thoughts are statistical patterns rather than specifically human. It is precisely the question of cognition that the uncanny poses. As Richard Coyne points out, the digital environments

promoted in chat rooms and multi-user games, suggest social dislocation and placelessness, indicative of non-place. The vacancy, violence and artificiality of some computer game worlds similarly speak of the disconnected, the placeless and the uncanny.¹⁴

Unlike real spaces that provide a rich sensory environment, the spaces generated by virtual or augmented reality technologies are often cognitively impaired – 'non-communicative, language-impaired or in some way pathological spaces'.¹⁵ But the interstitial space of digitally generated settings also reproduces an uncanny effect, a sense of instability, an uncertainty that makes us aware of boundaries rather than seamlessly immersing us in virtual environments. For Coyne, it is this uncanny effect – the perception of a gap or disjuncture – that forces an awareness of what Martin Heidegger calls 'enframing'.¹⁶ That is, we become conscious of the way that space is structured and how it structures our sense of orientation and ability to interact within it. Hence, enframing reveals itself not only as a form of social conditioning but also as an aesthetic practice that simultaneously discloses and conceals its own design structures, at the same time as it reveals the limitations of interactivity. Rather than reproducing a sense of space rich in details (one that allows for proprioception), these spaces reduce space to the frame of repetitive and automated reactions. Proprioception becomes less about spatial perception than the ability to navigate virtual spaces, and the rules and gestures that underpin them.

These gestures that emerge from navigating virtual space require mediation. The aesthetic experience merges with the act of interfacing. The interface, as Alexander Galloway describes it, is both manifest through screens and keyboards, and latent within software on internal and external levels.¹⁷ Both the screen and software have become ubiquitous and portable. Screening devices have also evolved into personal items that now mediate much of our social interaction, integrating our daily routines into global networks, which in turn run on algorithmically generated content. What characterizes the new personal and person-mediating screens is uncertainty about what constitutes the screen: it is both a surface and a material infrastructure; a window and a shade; an interface marked by the presence of an image and an invisible set of processes that use this same image or interface to disguise its own presence. Contemporary interactive screens that respond to our voices, our touch and our gestures further complicate what is involved in our encounter with and through the screen. The interactive screen demands we conform to programmed, recognizable gestures and behaviours as much as it responds to and remembers our personal haptic commands.

18 See Kriss Ravetto-Biagioli, 'Shadowed by images: Rafael Lozano-Hemmer and the art of surveillance', *Representations*, no. 111 (2010), pp. 121–43.

Lozano-Hemmer's *Reporters with Borders* illustrates how the interactive screen can produce a series of uncanny effects.¹⁸ The installation is deceptively simple. If the spectator approaches the screen from an angle, it will appear as two static but equally sized frames divided vertically down the centre. But once the spectator moves closer to the screen, she realizes that within each of the large frames there are hundreds of smaller frames – each containing the closeup of one individual anchorman or woman (figure 1). The installation is activated only when the spectator stands in front of the work, setting off a number of these screens within screens. All at once, those newscasters that the viewer passes in front of begin to deliver their broadcast. *Reporters with Borders* consists of a database of 1600 video clips of television newscasters from the USA and Mexico. At any given time, 846 images of these newscasters are selected and arranged into one of two equal frames, set on either side of the central border. While the central dividing line remains the same, the position of the individual newscasters changes in relation to this border every few minutes: sometimes they are redistributed along gender lines, the men divided from the women; sometimes in terms of their skin tone, with those who have a darker complexion separated from those with a lighter one; sometimes in terms of language, with the anchors who speak Mexican Spanish set on the opposite side of the screen from those speaking American English, pointing to the geopolitical boundaries between Mexico and the USA.

The interactive display demonstrates the paradox of the border in a world where surveillance is globalized and borders are themselves delocalized, where television images and personal data flow freely across borders. An obvious parody of both the multiple 'without borders' nonprofit organizations and the ambient television that provides background noise in homes and waiting areas, the installation makes us



Figure 1. Rafael Lozano-Hemmer's *Reporters with Borders* (2008). Image courtesy of the artist.

aware of borders and biases beyond those that appear on the screen. While similar to television, this is not simply a display screen but also a surveillance and tracking device that traces the silhouette of the spectator, then projects it onto the screen itself. The spectator is not profiled in the same way as the newscaster – her gestures are tracked and mirrored in the image itself, if only as a shadow – yet it is the shadow of the spectator that triggers the movement and sound of the embedded video clips. As the spectator passes in front of the various images, they begin to play; all of those falling within the penumbra of the spectator start to speak simultaneously, producing a cacophony of sounds and movements. Yet the relation of the spectator to the screen is an unsettling one, marking the spectator as a moving target, a participant, a ‘mobile and elastic commodity’¹⁹ and as a spectre haunting the screen, as she casts her shadow onto the various images. The spectator instantiates Brian Rotman’s ‘para-self’ – ‘a self becoming beside itself, plural, trans-alphabetic, derived from and spread over multiple sites of agency, a self going parallel’.²⁰ The emergence of para-selves (in the form of data-doubles, avatars, target audiences) and multiple forms of screening produces a series of tensions: a ghostly relation of spectator/spectre to screen, vision to visibility, anonymity to electronic monitoring, surveillance as security to social control by broad-spectrum data collection.

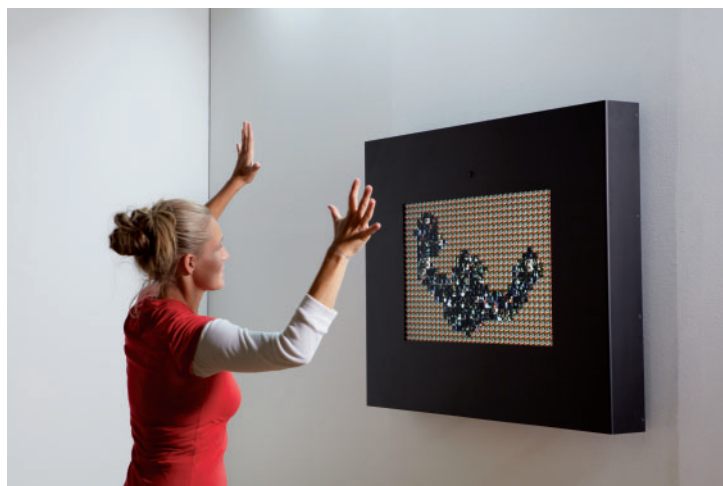
Reporters with Borders reminds us that the screen seems to promise access – even open access through windows and visual displays – but the encounter with the screen triggers other mechanisms (algorithms, technologies, motion sensors and profiling devices) that are programmed to map our locations, build archives of our daily behaviours, trace our contacts, purchases, interests and movements. These various ‘accesses’ are not as transparent as they seem: even more participatory forms, such as ‘poking’, ‘friending’ and ‘following’ on social media, are connected to ambiguous forms of data-mining for marketing purposes that are essentially no different from surveillance and dataveillance through webcam spying, GPS tracking and zombie cookies. Access may often amount to a simple click on a button labelled ‘agree’ or a click with no button at all (as in the case of cookies). The click of a finger seems relatively straightforward but sets off a complex set of invisible ‘handshakes’. Typically we slip unawares from screen encounters to invisible contracts, showing how poorly we have conceptualized, in technological environments, how identity is a relational process – a wholly social negotiation whose management is never entirely in the hands of one party but involves constant elicitation and recognition.

These redoubled screens and modes of screening simultaneously make present personal and impersonal memories, histories, images of liveness and speculations on the future, blurring the boundaries between representation, repetition and calculation. The screen also performs the act of screening – an act that doubles as both a scrupulous type of watching and an affirmative type of performing. The screen positions the

19 Anna McCarthy, *Ambient Television* (Durham, NC: Duke University Press, 2001), p. 24.

20 Brian Rotman, *Becoming Beside Ourselves* (Minneapolis, MN: University of Minnesota Press, 2008), pp. 8–9.

Figure 2. Rafael Lozano-Hemmer's *Close-up* (2006). Image courtesy of the artist.



21 Michel Foucault, *The Order of Things* (New York, NY: Pantheon, 1970), p. 308.

viewer in what Foucault might have called a ‘fictitious position [...] a never ending flicker’ where the spectator transforms the screen into an object, but the mise-en-scène installs the spectator in the non-place of ‘pure representation of that essential absence, that never ceases to be inhabited’.²¹ Instead of creating a subject position for the spectator through the organization of the mise-en-scène, the installation creates a space for its mise-en-scène in the shadow of the spectator.

Lozano-Hemmer’s work that uses motion sensors to track the movements of the spectator paradoxically ends up marking her absence on the screen. Like *Reporters with Borders*, his *Close-up* uses movements of the passer-by to activate a computerized tracking system built into a high-resolution display screen (figure 2). As spectators approach the screen and its camera, their video portraits are automatically captured and recorded. What immediately appears in front of them is a portrait of their own shadow, but one that is filled by hundreds of portraits of other people – previous spectators. The shadow reflects neither a self-image of the spectator, nor its lack. Yet here the shadow of the spectator is surrounded by multiple versions of her live image that fill in the background and make up the penumbra of her shadow. The spectator appears to have her own spectral presence both in the here and now as the outline of her own shadow or spectral future, and also as the shadow that invokes the ghostly or past images of other spectators. Yet this is not a ghost that returns from the past to ‘take place’ or appear in a particular place; rather this shadow marks a virtual spectre that will be placed alongside other spectres and appear inside the spectre of another future viewer’s shadow.

The shadow in *Close-up* is not even a real shadow but the simulation of a shadow that is scaled to an actual visitor’s outline. The relation of the shadow to the self-image captured by the surveillance camera is counterintuitive: the image of the spectator is in the penumbra of the

22 Brian Rotman, *Signifying Nothing: The Semiotics of Zero* (Stanford CA: Stanford University Press, 1987), p. 32.

shadow, and within the shadow are apparitions of previous spectators who stood in her place. This shadow is not a meta-sign or a meta-subject, as described by Rotman, since it does not ‘impose on the spectator a spatial-locatedness’ in the way that perspectival painting does.²² The meta-subject of perspectival painting was a selfconscious one, keenly aware of the limits of perspectival seeing. In *Close-up*, however, the spectator sees herself from the perspective of the screen.

It is this perspective through the camera (not the mirror) that adds another twist to what Norman Bryson and Christian Metz call the transformation of the subject into the object (in the processes of identification). In the cinema, it has been claimed by phenomenologists of spectatorial embodiment that this practice of looking disembodies the spectator. *Close-up* instead offers a strange sense of embodiment that is both subject and object of the gaze and embodied in its interactivity with the screen, but disembodied in its rendering in the figure of a shadow and the multiple images that make up the space that is external to that shadow. Here the shadow is an image created by surveillance technology installed in the screen itself.

But unlike CCTV, that suggests but does not *require* the presence of someone actually to be watching for it to function, it is the actual presence of a viewer that triggers the display of multiple surveillance images. These images that appear in the form of a return reveal both the present (or presence of the spectator) in the form of a shadow and multiple images of the past in the form of tiny video portraits. The shadowy presence of the spectator appears simultaneously with multiple images of the past, all of which are confusingly made present while the presence of the spectator is only outlined. The actual image of the spectator is not, however, just deferred onto some future configuration of the screen; it appears in multiple copies outside of its own shadow. The shadow is, therefore, the site of presence and absence, coming and going, but it is also an affective (double) image that produces and reproduces what Francisco Varela calls ‘sensory activation and motor consequence’ through continuous feedback loops.²³ The self-image of the spectator is present outside of its self-image as a shadow, yet appearing in numerous equally miniaturized frames. It is both there and not there, a para-self, outside of a life-size frame of itself yet present alongside the image of others within the shadow of the self.

Rather than enhance temporal continuity, Lozano-Hemmer points to the disjuncture between recognizing and reacting to the fact that we are being followed (by images, interfaces and tracking devices) and recognizing and reacting to the fact that these devices already anticipate our movements, desires and trajectories.²⁴ The video portraits also function as a tertiary memory, the experience and consciousness of an event that is available not through lived experience but through various recordings. Lozano-Hemmer demonstrates that interfaces (like alien memories) are neither points of contact between the human and the nonhuman or between memory and false-memory, nor are they

23 See Francisco Varela, ‘The emergent self’, in John Brockman (ed.), *The Third Culture: Beyond the Scientific Revolution* (New York, NY: Simon and Schuster, 1995).

24 Ravetto-Biagioli, ‘Shadowed by images’, p. 141.

extensions of the self in some distorted form (conventional types of doppelgänger). Interface can only be an indirect form of confrontation, an encounter between two virtual or potential subjects. Even when the video-portraits of previous spectators wave hello to their potential future spectators, assume postures or mouth words, their address is just as virtual as the response they receive from their spectators.

This is an interaction based on no apparent feedback. Unlike television, which does not allow for an immediate interactive response, *Close-up* provides a potential address and potential response. But it is this potentiality (virtuality) that makes each gesture appear to be only a performance – a conscious staging of self-expression for visual consumption. Interface organizes interactions, and programmes anticipated movements, but what emerges out of such interactive performances is ‘the singularity of the theatrical event’²⁵ that haunts and taunts our virtual constructions of self-identity and sociopolitical representation.²⁶

As Freud observed, the meaning of *heimlich* (homely, native) moves towards what is taken to be its opposite, the *unheimlich* (foreign, strange or uncanny). *Heimlich* and *unheimlich* are not simply opposites; *heimlich* itself is the repository of ambivalent meanings, signifying on the one hand the familiar and domestic, on the other the concealed and the hidden.²⁷ The uncanny is both familiar and strange, a doubling or redoubling of past events, figures, phrases or images. Freud repeatedly refers to Schelling’s definition of the uncanny – ‘with the uncanny everything which should have remained secreted, concealed, in latency, has come forth’ – linking the uncanny to the problematic relationship of being and non-being, the ‘reality or pleasure principle’ and the ‘death instinct’ (or what Heidegger called ‘being towards death’).²⁸ Being is thereby installed into a primary model of conflict, where all relations are seen as forces of opposition. Ironically, however, the death instinct serves as a positive (transcendental) principle for repetition, whereas the pleasure principle becomes solely psychological – an emotional feeling of familiarity that produces a sense of comfort.²⁹ The uncanny does not reside in the fear of absolute singularity – that we experience death alone, and it comes to us as individuals – but in the delusion of differentiation between the individual and the impersonal reaction formation.

According to Freud, the uncanny marks the return of the repressed, giving it a ghostly presence. What is repressed and returns is affect itself.

every affect belonging to an emotional impulse, whatever its kind, is transformed, if it is repressed, into anxiety, then among instances of frightening things there must be one class in which the frightening element can be shown to be something repressed which *recurs*.³⁰

The problem with this definition, as Samuel Weber argues ‘is that Freud leaves the basic cause of repression obscure, as well as the specific mechanism by which repression produces anxiety’.³¹ The uncanny is left

25 Samuel Weber, *Theatricality as Medium* (New York, NY: Fordham University Press, 2005), pp. 7–9.

26 *Ibid.*, p. 8.

27 Samuel Weber, ‘The sideshow: or remarks on a canny moment’, *Modern Language Notes*, vol. 88, no. 6 (1973), p. 1104.

28 Quoted in Freud, *Das Unheimliche*

29 Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton (New York, NY: Columbia University Press, 1994), pp. 16–17.

30 ‘This affective energy is thus cut off from the representation’, as Weber explains, ‘becoming free-floating and is transformed into anxiety, which Freud regarded as unbound psychic energy.’ But the weakness of this description is that ‘it leaves both the basic cause of repression obscure, as well as the specific mechanism by which repression produces anxiety’. See Weber, ‘The sideshow’, pp. 1102–33.

31 *Ibid.*, p. 1106.

unbound, possessing specificity but not a specific form informing a matter, nor a memory informing the present. It is not determinable, it is a return in the form of difference.

For Freud the uncanny is bound up with subjective emotions like dread, terror, uneasiness and anticipation. The body of work that Bill Viola started in 2000, *The Passions*, alludes to some of the same motifs – the doppelganger, the doubling and redoubling of uncanny experiences, déjà vu – but does not depend on relations between sensory perception and a predetermined symbolic order – the return of repressed traumatic events that arrive in the form of castration anxiety, fear of death and the paranoia of being watched, and so on. Viola is interested in the technology of expression, its reenactment or performance that can reveal hidden micro-movements that fall outside of the iconography of human experience. *The Passions* was shot on 35 mm film at a very high speed (300 frames per second), transferred to digital video, and slowed down to thirty frames per second when displayed on an LCD screen. Both the speed of the film and the slowing of the projection (the manipulation of time) display what Viola calls ‘an unexpected field of action’.³²

The series of video installations that comprise *The Passions* attempts to visualize or map out what Henri Bergson calls ‘embodied perception’ – linking motor memory with self-awareness and emotional intensity. Yet the mediation of embodied perceptions of joy, sorrow, anguish, fear and anger through high-speed film and high-definition video results in the uncanny disappearance of the readable (intentional movements, iconic gestures and performative emotions) as much as the appearance of otherwise imperceptible localized micro-movements (facial tics and gestural twitches). As a result, *The Passions* does not produce a subjective encounter (the reaffirmation of the self) but a semi-autonomous encounter between the lived and the non-lived. What makes the work so uncanny is that it points to what is embodied but also un-lived (that is, not consciously experienced) – to what Viola calls ‘the presence of the dead in the living’.³³ *The Passions* reworks the story of Christ’s death and resurrection, but it does not reproduce the visceral sense of suffering conveyed by the Renaissance paintings on which this series is modelled.³⁴ Instead the excruciating amount of detail in these moving images produces a disturbing sense of theatricality in intense tableaux of shifting and momentary expressions. In the case of the *Quintet of the Astonished* (the first of the video installations to make up *The Passions*), what took one minute to act out was stretched into sixteen minutes of high-definition video, depicting the life-size figures of four men and one woman, who envision and act out a range of expressive gestures (figure 3).

32 John Walsh (ed.), *Bill Viola: The Passions* (Los Angeles, CA: J. Paul Getty Museum, 2003), p. 40.

33 The quote is taken from a lecture, entitled ‘Movement in the moving image’, given at University of California, Berkeley’s Townsend Center, 28 September 2009.

34 For a longer discussion of Viola’s interpretation of devotional and religious-themed renaissance art in his video art work, see Nancy Keefe Rhodes, ‘How video became art: Bill Viola and David Ross return to the Everson Museum’, *Canoe Stone Journal*, May 2011, <http://www.stonecanoejournal.org/pdfs/Viola_HowVideoBecameArt.pdf> accessed 12 December 2015.



Figure 3. Bill Viola's *Quintet of the Astonished* (2000).

35 Bill Viola, 'A conversation', interview with Hans Belting, in *Bill Viola* (Oxford: Oxford University Press, 2003), p. 200. See also Mark Hansen's 'Time of affect or bearing witness to life'.

In an interview with Hans Belting, Viola remarks:

I was most interested in opening up the spaces between the emotions. I wanted to focus on gradual transitions – the idea of emotional expression as a continual fluid motion. This meant that the transitions, the ambiguous time when you shift from being happy to sad, is just as important as the main emotion itself.³⁵

Critical Inquiry, no. 30 (2004), p. 613, where he argues that ‘in the case of Viola’s work, we are exposed to affective nuances that are properly imperceptible to the human eye and that can only be presented through the mediation of technology and only assimilated through the modality of affectivity’.

The Passions slows down the rapidly shot images so much so that emotions become indeterminate, but the micro-movements of the face and body become hypervisible, leading us to reconsider what constitutes both performance and experience. Performance functions as a form of visualization, as was shown by the recent experiment in which fMRI (functional magnetic resonance imaging) tests were given to actress Fiona Shaw as she performed T. S. Eliot’s ‘The Waste Land’. The fMRI operates by measuring cerebral blood flow. Since blood flow is coupled with neurological activity in the brain, the fMRI can map out which areas of the brain are activated when presented with external stimuli. Those same centres of the brain activated by witnessing someone else perform an action – such as those areas associated with arm, leg and upper body movements – were activated when Shaw performed the various voices contained in the poem. Shaw’s mental visualization of Eliot’s phrases produced actual neurological stimulation that could in turn be mapped (or visualized).

Like artists and critical theorists, cognitive scientists have applied ‘the uncanny’ to the gap between kinaesthetic gestures and emotions, emergent and categorical brain and neurological responses. I am thinking particularly about what robotics expert Masahiro Mori termed the ‘uncanny valley’ (in 1970) and what has been called the ‘mirror neuron system’. Using fMRI visual mapping technologies, cognitive scientists have shown that when we watch someone playing music or expressing emotion, those centres in our brain that control our motor functions (arms, legs, facial expressions) are stimulated. According to the argument, our brain mirrors what we are watching even though we do not act it out. This is not, however, a case of simple recall; we do not need to have actually experienced any of the things we witness in order to have our brains ‘mirror’ them or to at least give us a positive result. What has been argued is that when we watch others we create a phantom sense of embodiment and conjure up phantom memories.³⁶ These impulses are then read as empathetic (that is, affective), but here empathy exists without any conscious awareness (that is, without any emotional response). Ironically, the fMRI cannot show or locate any emotional or empathetic responses, only the triggering of those centres of the brain that are already associated with an understanding of gross mechanical movements. While the fMRI can show that there is a correlation of stimulation to brain functioning, this does not translate into understanding the motivation for these same actions. As Vladimir Kosonogov explains, ‘the mirror neuron theory proponents use the term “action understanding” to emphasize that not only the sensory and motor aspects of an action, but also its goal and intention can be recognized by an observer’. This, he argues, is based on ‘the apparent internal logic of inconsistency’.³⁷ The problem for Kosonogov and many other cognitive scientists is that the understanding of intention requires the

36 See for example, Massimo Ammaniti and Vittorio Gallese, *The Birth of Intersubjectivity: Psychodynamics, Neurobiology and the Self* (New York, NY: Norton, 2014); Marco Iacoboni, *Mirroring People: The Science of Empathy and How We Connect with Others* (New York, NY: Picador, 2009); V. S. Ramachandran, *The Tell-Tale Brain: A Neuroscientist’s Quest for What Makes us Human* (New York, NY: Norton, 2012).

37 Vladimir Kosonogov, ‘Why the mirror neurons cannot support action understanding’, *Neurophysiology*, vol. 44, no. 6 (2012), pp. 499–500. See also Greg Hickok, who argues that the mirror neuron has never been adequately tested, in ‘Eight problems for the mirror neuron theory of action understanding in monkeys and humans’, *Journal of Cognitive Neuroscience*, no. 7 (2009), pp. 1229–43.

observer to recognize an action and already be able to qualitatively judge such actions. But this does not explain how we come to understand expressions and gestures that we cannot recognize.

Experience, ironically of both acting and witnessing, is presented in Viola's work as a form of uncanny embodiment – it is both embodied and not embodied. The performers do not consciously experience the actual micro-movements performed in *The Passions*, they are apparent only to the spectator. What is apparent to the performer (in real time), as Carrie Noland remarks, are kinaesthetic sensations such as 'tension in the jaw or a sudden release of constriction in the brow'.³⁸ Also commenting on *The Passions*, Mark Hansen argues that Viola's focus on the in-between or the interval produces a new form of affectivity. Whether kinaesthetic or affective (the lived), the performer would have difficulty reproducing such gestures in real time. As Hansen writes,

the job of consciousness has been taken over by technology, that is, by tertiary memory (the non-lived experience). This only becomes a problem when Viola's videos contaminate our perception with the recurrence of a tertiary past (the non-lived).³⁹

Technology is now standing in for memory, consciousness and experience, feeding it back to us in the form of an uncanny affect. Technologies exteriorize our memories (in the form of a database or archive), offering us 'tertiary memory' (a secondary or non-lived memory) and image-consciousness (a consciousness that does not derive from embodied perception).⁴⁰ According to cognitive scientists such as Eric Kandel and Alva Noë, the brain functions like 'tertiary memory', filling in for what we do not or cannot remember, or using memories of what we have already seen in the past to fill in the perceptual gaps of an image of something we are observing in the present.⁴¹ It is this use of the non-lived to fill gaps in the lived that also points to the presence of the dead in the living.

But where do we then locate these emotions when emotion itself simply simulates (or mirrors) technological consciousness? *The Passions* does not represent human emotion as much as it calls attention to the gestures of grief, loss and trauma that have themselves become iconic. Yet the speed of the recording and the subsequent confrontation with the recorded gestures does something unique. Rather than trying to capture some ephemeral spiritual moment outside of time, Viola's work demonstrates how such gestures are time-dependent, coming into and going out of existence with changes in the pace of recording and playback. These resurrected and embalmed gestures, performed before the camera, constitute an instruction manual on the aesthetics and visual grammar of gestures of grieving, joy, anger and frustration. But by pointing to their own theatricality or spectrality, they decouple gestures from subjective experience, revealing the emotive gesture as a mechanical bodily expression rather than an intense emotional one. Like the uncanny itself, *The Passions* undermines those stable subject

38 Carrie Noland, *Agency and Embodiment: Performing Gestures, Producing Culture* (Cambridge MA: Harvard University Press, 2009), p. 72.

39 Hansen, 'Time of affect or bearing witness to life', p. 599.

40 See Bernard Stiegler, *La Technique Et Le Temps: 3. Le Temps Du Cinéma Et La Question Du Maître* (Paris: Galilée, 2001), p. 37.

41 Eric Kandel argues that the brain 'obtains incomplete information from the outside world and completes it', and that our brain fills in information into an otherwise incomplete impression.' Furthermore, he argues that 'these insights into perception serve as the bridge between the visual perception of art and the biology of the brain'. The question returns us to the Derridian problem of beginning by coming back. That perception is somehow contingent on something that is an already formed image. See 'The new science of mind: gray matter', *The New York Times*, 6 September 2013, <<http://www.nytimes.com/2013/09/08/opinion/sunday/the-new-science-of-mind.html?pagewanted=all&r=0>> accessed 13 December 2015. See also Alva Noë, *Action in Perception* (Cambridge, MA: MIT Press, 2004), pp. 75–122.

positions that would allow us to interpret gestures, emotions and embodied perceptions as having specific symbolic meaning. The return of an embodied perception is itself uncanny: the body only registers the reflection of a gesture when it returns in the form of a ghostly image. But the return always takes the form of difference. That is, it comes in the form of what Roland Barthes would call the prick or punctum, and therefore it is only lived as relived (or already lived). Such ‘involuntary recurrences’ of unrecognizable gestures and poses link spectral haunting to the uncanny.⁴² In the case of the *Quintet of the Astonished*, theatrical reanimations of iconic but imaginary stagings of gestures of grief, trauma and Christian spirituality are linked to these indecipherable bodily expressions.

In conjunction with the commercialization of internet and computer technologies in the 1990s, the uncanny ‘has become a master trope available for appropriation in a wide variety of contexts’.⁴³ This wave of renewed interest in the trope of the uncanny coincides with techno-determinist visions – both technophilic visions of extending and supplementing human agency, and technophobic visions of controlling or replacing the human. Such techno-determinist views were already more than familiar to anyone interested in science-fiction fantasy. Interactive media, therefore, appeared simultaneously as forms of emergence and return, which led to the questioning of the alleged ‘newness’ of digital technologies themselves. Media theorists such as Marshall McLuhan, and more recently Lev Manovich, Philip Rosen, Jay David Bolter and Richard Grusin, posit that digital technologies often (uncannily) repeat the properties of the non-digital.⁴⁴ For such theorists, what is new, therefore, is not the media itself but the way older media like television, film, surveillance technologies, and so on are remediated or reanimated and help us to see that the body and the concept of the human itself is also a form of remediation.⁴⁵

Remediation shares a structural similarity with the uncanny: the compulsion to repeat (images, sounds, concepts and bodily movements). Like the uncanny, repetition comes in the form of difference; that is, the ‘new media’, like presence itself, are spectral – neither being nor non-being, both there and not there. But if we understand the relation of older media to newer media as one in which the new simply reanimate the old, then we are essentially putting older media in the position of a *revenant* that haunts all possible forms of media. In his work on spectrality and haunting, Jacques Derrida explains that ‘a specter is always revenant. One cannot control its comings and goings because it begins by coming back.’⁴⁶ The discourse of remediation, however, does not simply leave the comings and goings of older media to chance, it turns older media’s return into something more messianic than uncanny, conflating the remembrance (recollection and retention of older media) with a form of representation (its image). That is, these theories of remediation, as Sande Cohen points out, become just another form of spiritualization that confuses modes of communication with an image of presence. He asks,

42 Weber, *Theatricality as Medium*, p. 182.

43 Martin Jay, ‘The uncanny nineties’, *Salmagundi*, no. 108 (1995), p. 20.

44 Philip Rosen uses the term ‘digital mimicry’ to describe how digital image processing repeats the uncanny effects of non-digital images – the ghostly untimeliness of photography and film, the sense of linear perspective, the paths of lost references, auras, and the historicity of photographs, film, records and various other media; see *Change Mummified: Cinema, Historicity, Theory* (Minneapolis, MN: Minnesota University Press, 2001), pp. 333–35. Jay David Bolter and Richard Grusin suggest that remediation is a defining feature of the new digital media, and that media have always ‘borrowed, repurposed, reused, re-appropriated, and essentially re-mediated older media forms’; see *Remediation* (Cambridge, MA: MIT Press, 1999), p. 45. Lev Manovich likens digital technologies to cinema, in *The Language of New Media* (Cambridge, MA: MIT Press, 2002).

45 See Deleuze, *Difference and Repetition*, p. 91.

46 Jacques Derrida, *The Spectres of Marx: The State of Debt, The Work of Mourning and the New International*, trans. Peggy Kamuf (New York, NY: Routledge, 1994), p. 11.

47 Sande Cohen 'Digital critical', unpublished paper delivered at the Recorded: Landscapes and Politics of New Media Conference, Aberdeen University, 25–26 April 2008. Cohen writes that 'Manovich thoroughly confuses communication with image presence; electronic telecommunication is said to be "two-way" in contrast to photography and film, thus the overcoming of distance. But the idea that one communicates with a screen is already crazy-making, since exactly how does one communicate with a visual object as opposed to working it, manipulating it?'

48 Deleuze, *Difference and Repetition*, p. 15.

49 Lutz Koepnick, 'Photograph and memories', *South Central Review*, vol. 21, no. 1 (2004), p. 98.

'how does one communicate with a visual object as opposed to working it, or manipulating it?'⁴⁷ As Deleuze argues, 'we produce something new only on condition that we repeat [... since] repetition is a condition of action before it is a concept of reflection'. Hence the return in the form of remediation produces only a 'difference absolutely without concept, an indifferent difference'.⁴⁸ This, of course, problematizes the concept of remediation, of transcoding and digital mimicry as they collapse repetition into representation – they divorce experience from aesthetics.

Analogue photographic and film cameras, for example, have been described as prosthetic viewing devices – artificial eyes extending and enhancing the physiological capacities of the human body – and as such they allow the beholder to experience different times, spaces and perspectives, fostering cognitive and affective relations that transcend embodied perception. But when we confront computer-generated images we are forced to rethink the aesthetics of reality and the conceptualization of mechanical images as prosthetic extensions of the human body and eye. In interactive 3D presentations no physical camera is needed. Digital imaging processes relocate 'vision to a plane increasingly independent from the position of an embodied observer. They replace the human eye with practices and techniques that no longer refer to the presence of a viewer whose gaze may structure or even produce the visual field.'⁴⁹ This returns us to the problem of enframing as a technological process that is indifferent to the human subject but impacts on our experience of images.

Bodytext treats enframing not as the substitution or imposition of technology on thinking but as an assemblage of interfaces, protocols and interactivity. It is no longer a play of surface effects but a complex interactive performance that explores the interrelationships between kinaesthetic experiences and memory, muscle memory and intentional movement, and dance as an imagined movement, a form of interaction, gesture and response to voice recognition, sonification and audio programming. The work employs closed-circuit video, speech recognition that translates speech into text, motion tracking, synthetic grammars, dance and granular audio synthesis. Hawksley (the dancer) describes and then performs a dance based on her description. But this description is more an assemblage of poetic associations than a denotation of moves to be followed. She begins, for example, with what seem to be descriptions of movements, 'standing on the steps falling up, travelling steps in threes, gather round and lift, open', but then shifts into rhetorical questions such as 'is this remembering or stealing?', and continues 'I got the news in a phone call'. These poetic descriptions weave together citations (from Samuel Beckett's *Krapp's Last Tape*, as well as directions and descriptions from other choreographers) with autobiographical memories, imagined movements and a complex set of poetic associations that connect words to the visualization of a movement to come, a movement that is remembered, and movements that are bundled up with other memories (of dance, texts and life experiences). The recited and performed text consists of forty-seven remembered

50 Simon Biggs, Sue Hawksley and Garth Paine, 'Bodytext: somatic data as agency in interactive dance', in K. Cleland, L. Fisher and R. Harley (eds), *Proceedings of the 19th International Symposium of Electronic Art*, Sydney, 2013, <<http://ses.library.usyd.edu.au/handle/2123/9697>> accessed 13 December 2015.

phrases (265 words) that by themselves evoke questions regarding authorship, translation (of movement into language and back into movement), the relation of language to modes of visualization and movement itself. As Hawksley aptly puts it: 'Is the utilisation of such deeply embodied movement memories remembering, or stealing?'⁵⁰ Such questions ask us to think about the uncanny relationship of memory not only to authorial texts, demands, commands and iconic phrases but also to muscle memory, iconic or signatory gestures and improvisation.

Bodytext begins with the dancer (Hawksley) standing still in front of a large dark screen, reciting the remembered poetic text. The description of the dance is then captured and interpreted by the computer, which transcribes the text and writes it in small white letters on a large screen in the background. At the same time the computer captures her voice as an auditory stream that will serve as the foundation for the sonic environment. Once she has completed her verbal performance of the text, Hawksley begins to enact (to dance) what she has just vocally announced and imagined. As she performs, she physically interacts with the projected text and the captured audio stream of the imagined dance, causing it to be rewritten and resonified through her physical movements (figure 4). The textual and sound objects are driven by the speed, direction and orientation of Hawksley's movements, causing the text and sonification to spin and surge at unpredictable rates. Hence the vibration of Hawksley's movement and resonance of her voice return in an uncanny fashion – they return in the form of *revenants* that are neither predictable nor controllable. Hawksley then turns to the screen, on which is presented a completely rewritten different dance, and attempts to perform what is written there. Given that the program has jumbled words and letters, she cannot respond to the content of the text, instead she must respond to the patterns and associations she perceives. What is so interesting about the piece is that these uncanny returns of remediated sound and transformed text seem to reveal the affect of the very programming and recording devices that register and generate them as much as they do the spectator and performer.

This interaction with the projected digital display and audio environment causes the dance to rewrite itself, and its movements to regenerate sound events. As Biggs explains:

The object-oriented programming techniques employed in *Bodytext* allow each text, as a software entity, to read itself and other intersecting texts and to rewrite its own text, depending on what it reads in the other. The outcome is that the intersecting texts rewrite one another as a form of recombination.⁵¹

Object-oriented programming is defined by the types of functions that can be applied to a data structure that is treated as an object. It is this type of programming that allows Biggs and Paine to create a relationship between real-time motion tracking, voice recognition, interpretative language systems, projection and granular audio synthesis, and to modify

51 Ibid.

speaking to each other and establishing new forms of protocol. Yet it is the human interaction that performs or registers these glitches.

Entropy is visualized as a scattering of words and a jumble of letters, and it is sonified as a remediation of vocal expressions that are processed and spatialized into a soundscape. Because the program has jumbled words, letters and sounds, Hawksley cannot respond to the actual content of the rewritten text but only to the patterns and associations she perceives there. These uncanny returns of remediated sound and transformed text thus seem to reveal that the digital apparatus produces its own responses, changing how we understand feedback. Suddenly, with a command and a gesture, Hawksley erases the letters on the screen and stills the sound. It is at this point that the performance restarts or resets. Yet rather than standing still while reciting the text, Hawksley now performs the movements as she recites the text. This second iteration of the performance produces many more glitches – in the recognition and transcription of words, in the confusion of words and breathing, the sound and movement of feet, arms and the body through space. What returns in the form of language and sonification can no longer be considered symbolic, it is instead a product of glitching, misrecognition and approximation.

According to Biggs, Hawksley and Paine, the ‘initial inspiration for *Bodytext* was Alan Turing’s early conceptualisation of computation, further articulated by Terry Winograd, as a self-modifying and generative symbolic system’.⁵² While *Bodytext* takes up Winograd’s notion that computer writing is a recursive symbolic process, the combination and multiplication of forms of writing – from language, to sound, movement, dance, memory and recording – it demonstrates that interactivity produces too many variables to reaffirm or even write itself in terms of languages or protocols. ‘The combinatorial is the art or science of exhausting the possible, through inclusive disjunctions.’⁵³ Exhaustion occurs at both conceptual and psychological levels, exhausting bodies, exchanges, algorithms, perceptions and patterns of recognition.

What makes *Bodytext* particularly relevant to an understanding of the digital uncanny is the way that it parses out information between media and disciplinary modalities like embodied perception, proprioception, digital language, movement and sound. Although the behaviour of the piece is recursive – a pervasive premediation that as Biggs puts it, ‘ends badly’ – it presents this collision of technologies, figures and forms of translation as something that disfigures the various forms of enframing. It does not leave us with an excess of affect to be found in the interval (Viola), or the strange vectors of potential anticipation (to be found Lozano-Hemmer’s work), rather it leaves us with the glitch, the network of collapse (gesture, sound, affect, embodied perception, interaction), which allows us to rethink the dance between emergence and adaptability. Here the uncanny returns both as an effect on an assemblage of machines that can no longer produce any feedback, and an affect that can only be expressed as a form of exhaustion.

52 Ibid.

53 Gilles Deleuze, ‘The exhausted’, trans. Anthony Uhlmann, *Substance*, vol. 24, no. 3 (1995), p. 5.

Exhaustion is not the type of ‘feeling’ that can embody knowledge or generate new forms of consensus. Instead it is expressed and experienced simultaneously through recursive and repetitive gestures that mark an unnamable affect (the glitch, the facial tic, feedback without a subject or object, non-symbolic language, a non-subjective experience). Exhaustion, like the digital uncanny itself, comes as a radical form of repetition that undermines the faith we put in semi-automated systems of control. But repetition does not always ensure a return of the same; there is always modulation, mutation and glitch. At the same time, repetition does not always produce difference; it often exhausts the potential to transform. If we think about the aesthetic experience of the digital uncanny as a set of exhausted and exhausting posthuman (algorithmic, affective, embodied, material, virtual, automated and self-organizing) relations, then they ‘do not represent a promise of overcoming domination as [they do] in Rancière’s aesthetic regime of art’.⁵⁴ Works like *Bodytext*, *The Quintet of the Astonished*, *Reporters with Borders* and *Close-up* demonstrate how digital media technologies have radically altered our subjectivity, and with it aesthetic experience. They bypass a human-centred perspectival mode of viewing and at the same time they exhaust machine vision, dissolving the idea of a unified subject whether it is human, nonhuman or posthuman.

The digital uncanny does not mark the difference between human and nonhuman machines, the real and the unreal. Instead, as Weber explains, it forms ‘a certain indecidability’,⁵⁵ which affects and infects representations, motifs, themes and situations. Such uncertainties strip the body of its positioning as a locus of sensation, perception and recollection, which in turn strips thought of its presuppositions, like the assumption that it is solely a human faculty. By uncoupling bodies and thinking from forms of representation – bodily images and images of thought – the body and thought are themselves rendered indeterminate, ungrounded and *uncanny*.

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54 Maurizio Lazaratto, ‘The practice and anti-dialectical thought of an anartist’, in Stephen Zepke and Simon O’Sullivan (eds), *Deleuze and Contemporary Art* (Edinburgh: Edinburgh University Press, 2010), p. 104.

55 Weber, ‘The sideshow’, p. 1104.