

Synthetic landscapes, Google Street View and other-than-human agency

Landscape aesthetics are essentially a mediation on space. Space, its relationship to the environment and cultural attempts to establish a landscape aesthetic have proven to be one of the most complex perceptions in prevailing environmental and ecological art practice. Spatial theorists such as Henri Lefebvre, Doreen Massey, Yi-Fu Tuan and Gaston Bachelard have all worked on determining the particular ways that space can be encountered and practised. One of the fundamental texts on how space is replicated, Lefebvre's *The Production of Space*, has contributed to more clearly defining the difference between 'spatial practice' and 'representational space' (1974: 220). Representational space incorporates social space (with its complex codes and means of operation) but also how art codifies the world around it through representation. This chapter will examine two iterations of representational space: the first section is firmly fixed in the art-historical aesthetic of the environment and will examine the other-than-human agency of the satoyama as illustrated in *Fungal Time in the Satoyama Forest* (2013), a project by Elaine Gan and Anna Tsing with video editing and animation by Natalie Goldman. The second section will provide a more contemporary examination of space using mapping software, but still based on the long-standing history of cartography. Both are models of representation, but the interaction and site-specificity of media art enables a more fundamental exploration of the embedded figure in the environment.

Art-historical developments, emerging from post-Enlightenment romanticism, have established a pristine other-than-human environment at the centre of utopian views of ecosystems. But in contemporary digital culture, the practice of modification and appropriation of technologies along with a prevalent concern for a worsening environmental crisis means that landscape as a genre has a vital role to play in upending the notion of a pristine nature. Sean Cubitt has pointed out that

the lesson of both the struggle to produce non-polluting media and to retro-engineer art by disassembling and rebuilding hardware is that moving image media not only reflect environments: they are themselves integrally bound up in the fate of the physical planet through their physicality, and at the same time are in the process of becoming environmental themselves. (2013: 48)

Digital representations of nature often took place from within that art-historical, utopian context such as those created by pastoral and sublime painting. However, current ecological crises form a central axis where contemporary art practices can generate new forms of

representation. It is increasingly important to see in what way this relationship between art and science influences how the environment is represented.

Joanie Lemerrier melds conventional drawing practice with digital projections to create landscapes that capture the evolving liveness of a natural phenomenon. The world serves to emphasize the symbolic aspect of drawing and relational capacities of moving image technologies. His 2014 installation *Fuji* () is a representation of the volcanic landscape of Mount Fuji (Figure 3).



Figure 3 Joanie Lemerrier, *Fuji* () (2015). © Studio Joanie Lemerrier.

The subject is connected to his wider interest in volcanos and builds on his previous work capturing the Icelandic volcano, *Eyjafjallajokull*, which famously erupted causing disruption across Europe. Lemerrier's work references post-Enlightenment notions of the sublime and its impact on the viewer. As one of the core frames with which the other-than-human world is processed by humankind, the sublime can elicit both fear and awe. Sublime landscapes are impressive in their majesty and monumentalism and notably dwarf the viewer with a grandiose sense of scale. The notion of the sublime has had a profound influence on traditional artistic representations of nature. Terry Eagleton describes the phenomenon as a 'chastening, humiliating power, which decentres the subject into an awesome awareness of its finitude, its own petty position in the universe' (1990: 90). Lemerrier's use of traditional drawing materials – referencing the historical context of landscape painting – and the use of light merge new digital developments and technologies in an artistic process with traditional methods of creating art. But Lemerrier also maintains a meaningful connection with Mount Fuji itself. In his blog he describes an attempt to reach the summit of the mountain: 'During the ascension through the fog, the changing weather would let the summit appear for a few

moments, making it seem unreachable and almost unreal'.¹ His depiction of the landscape sits within the historical – graphic and linear – representations of Mount Fuji, in particular, Hokusai's series, *Thirty-Six Views of Mount Fuji*, of which the first woodcut, *The Great Wave of Kanagawa*, is the most iconic. Lemercier's work therefore can be situated within the wider historical framework of both the sublime and environmental art practice while also being created using digital technology. The image makes the viewer feel chastened, as Eagleton had described as one of the features of sublime landscapes, but the fact that the artwork is also a moving image piece means that Lemercier captured the mountain in motion and that closely aligned the experience with the reality: that is, it is a more ecological representation of other-than-human nature.

Coming from a residency in Japan, Lemercier begins with a study of bamboo structures that capture the forest at the base of Mount Fuji, *Aokigahara*. The narrative, projected onto the wall of the gallery space using light, tells the tenth-century Japanese fable of *The Tale of the Bamboo Cutter*. Lemercier's work merges new digital technologies in the form of light projections with traditional hand-drawn gallery images. Some tools might differ from Hokusai's prints but its theme is much the same, the sublime and its connection to the feeling of fear and terror, mountainous monumentality, and the artistic concept of a nature apart from the everyday. Digital tools can strengthen the ephemerality of artistic landscapes and many media artists seek to recreate a lost nature, reminiscent of the historical aesthetic conceptions of the natural world. But alongside this expression of nature is the constantly changing aspect of the moving image. Woven into these processes is the rational subjectivity of the viewer who, thanks to recent digital innovations, can get a sense of the monumentality of the mountain in a gallery space.

To move more specifically into the field of video art momentarily, an important piece that revealed the association between art and science is *Fungal Time in the Satoyama Forest*. Satoyama is the Japanese tradition of incorporating human and other-than-human agency in landscape horticulture. The term directly translates as *sato* () meaning arable and *yama* () meaning mountain. Definitions vary from the forest itself to a much broader region covering both the forest, its neighbouring spaces, and interdependent environments; for example, Shiho Satsuka describes satoyama as 'secondary forests near human settlements where people used to coppice woods and clear the forest ground to collect fuel and green fertilizer' whereas Hiromi Kobori and Richard B. Primack regard the term as embodying 'the entire landscape consisting of community forests, rice paddy fields, grasslands, wetlands, and the remaining agricultural landscape used to supply the needs of the entire community' (2013: 49; 2003: 308). The confusion illustrates the historical embeddedness of human agriculture in mountainous regions, and the fact that the practice speaks as much to management as it does to nature/cultures and the imbrication of the cultural upon natural or other-than-human practices. *Fungal Time in the Satoyama Forest* is an example of a biocentric artwork that seeks to integrate and acknowledge other-than-human agency while still highlighting the decline of the matsutake mushroom that generally relies on anthropogenic satoyama to flourish. Furthermore, it is a celebration of a landscape that counters traditional narratives of

anthropocentric dominion and suggests a codependent relationship in its place. Valuing biodiversity is something central to the concept of *satoyama*, and it is important to note here that the practice was, to some extent, neglected in Japan until the Japanese government implemented a conservation effort launching the Satoyama Initiative at the UNESCO Global Workshop in 2010.

Fungal Time in the Satoyama Forest is a video installation that comprises two screens: the first showing the movements of a forester above ground and the second showing the fungal growth underground. Madeline Boyd defines the piece as multispecies art which is ‘inclusive of all species, human, animal, fungal, virus, plant, microbe, weed, pest, and so on’ (2015: 14). She calls for a ‘multispecies specificity’ where all participants are recognized and celebrated. The temporal dimension of the piece is referenced in the forester’s movements as they walk and the fungal growth of a satoyama forest underneath: the growth and change that is indicated illustrates the slow binding and symbiotic relations between the mountain itself, the fungi, and the human presence that has altered the balance of the forest. The ongoing restoration of the satoyama forests shows, for Anna Tsing, the singular premise that ‘the idea of human activities should be part of the forest in the same way as nonhuman activities’ (2015: 152). There are demands to deal with the cultural awareness of the origins and deep-rooted traditions of non-Western science; as Tsing, along with Shiho Satsuka, argues, one of the ‘key stumbling blocks’ to overcoming ‘representations of universalized European rationality’ is the ‘simplistic notion of cultural essences in which non-Western knowledge appears trapped in the logics of traditional culture’ (2008: 245). Deconstructing the complex set of historical, and neo-colonial relations between what is deemed to be Western universality and non-Western specificity means interpreting the history of forest management as a nuanced and evolving set of cultural codes, not necessarily exportable to other regions in the world. As Tsing and Satsuka argue, ‘In both Japan and the United States, forestry has been tied to the making of the nation and the state’ and that ‘Cultural understandings of forests do inform scientific research questions, but they grow out of forest histories, rather than preceding them as transhistorical essences’ (2008: 245). The cultural context within which these environmental features emerge is a key signifier of the importance of a particular landscape to a region.

These are socio-ecological landscapes where the management of forests infers the necessary cohabitation, interaction and impact of human and other-than-human actors. Describing satoyama on Elaine Gan’s website as ‘a manifold of times, a recursive patch that both shapes and emerges from durational yet indeterminate encounters between many species’, the installation illustrates the opportunity digital technology provides in capturing biological processes (<http://elainegan.com/satoyama.html>). Collaborator, Anna Tsing, points out that Japanese matsutake scientists attribute the decline of the mushroom to ‘too little human impact’ (2010: 61). The avowal and acceptance of anthropogenic natures is part of an ongoing breakdown of the *idée fixe* of a pristine mountainous wilderness. Gan’s and Tsing’s pieces go some way in softening the boundaries between cultural and natural environments and further the argument that nature has a cultural dimension and vice versa. *Fungal Time in*

the Satoyama Forest is an artwork that works as an assemblage, representative of the intricate relations that bind human and other-than-human actors.

Because interaction, in many ways, defines the relationship between the viewer and the artwork, it is a distinctive feature that has played a large part in media art. An example of how digital technology can renegotiate the surrounding spaces, in particular, urban spaces, and how the user interacts with those spaces is *Indeterminate Hikes+*. Released in 2012, *Indeterminate Hikes+* is a mobile app created by artist collective, EcoArtTech, made up of Leila Nadir and Cary Peppermint. They designed the app to spur the user, through the use of a smartphone, to probe their environment in innovative and fresh ways. Artworks that facilitate or generate agential data for other-than-human actors contribute to increased emancipation of nature; but is it genuine other-than-human agency if they administer it from within the human realm? Sidney I. Dobrin reasons that the easing of the adversarial stance between the terms 'digital' and 'environment' (or man-made versus natural) is productive for ecocritics as the terms 'digital' and 'environment' are oppositional with 'digital standing in for technology/technological and environments often used to represent nature/wilderness. Thus, reading digital environments as technological nature is not a far stretch' (2014: 203). The interlocking of nature and technology is fully represented in media art and discloses a technological nature. Destabilizing the binary definitions and promoting a sense of technological nature as something that is not too much further along than agriculture opens up the discourse of nature aesthetics to incorporate more complex iterations of other-than-human entities.

Geoff Manaugh's publication, *Landscape Futures: Instruments, Devices and Architectural Inventions*, considers how landscapes are reconstructed using technology. He cites Scanlab projects' work as an example of glitch imagining or what he terms a mistake-scape, that is, the creation of a new space that emerges from the cracks that appear in a scanned environment. The group was founded in 2011 and comprises architects Matthew Shaw and William Trossell. Working with artist Daniel Steegman Mangrané, Scanlab have created *Phantom*, an interactive installation, at the New Museum in New York. Using a VR headset, the Oculus Development Kit 2, they invite visitors to transport themselves to the endangered ecosystem, the Mata Atlântica rainforest in Brazil. They scan various natural phenomena such as, according to Manaugh, 'fog banks . . . or forests in the process of being cut down, so you'd get these really strange time-sequenced glitch images of deforestation' (creativeapplications.net). The work highlights how our dependency on technology has become ingrained in our aesthetic framing systems. Total immersion in the wilderness (from inside the gallery space) is not just an appropriation of one type of space into another but an amalgamation of both into a digital visual culture, into a digital world. Whereas previously the computer viewer was linked to the machine and rendered stationary, the VR user is compelled to move their physical body in a digital environment.

This hybrid space within eco-digital art, between environmental aesthetics (in an art-historical sense) and a contemporary digital materiality, has opened up new avenues for visualizing nature, and, interestingly, aestheticizing global crises. The difficulties of

representing global connectedness has been dealt with competently in Ursula Heise's *Sense of Place and Sense of Planet*, where her study of John Cage's 1992 performance piece *Overpopulation and Art* illustrates the shift from traditional dystopian overpopulation narratives to a visual aesthetic that applies 'crucial importance to emergent networks of information and communications technologies as a new kind of public sphere that functions sometimes as a complement to and sometimes a metaphor for ecological connectivity' (2008: 90). Heise argues that the challenge for environmental understanding, a challenge that is realized in Cage's work among others, is 'to shift the core of its cultural imagination from a sense of place to a less territorial and more systematic sense of planet' (2008: 56). The evolution of a digital aesthetic has modified the manner in which we think about how we collaborate and merge with our surrounding. The emergence of a global community may have impacted on our understanding of space, creating smaller distances between us, but it is the digital networks that have emerged as new spaces. How we describe or aestheticize our sense of place is part of technological history evident in art-historical discourse. Does media art have a stronger awareness and better means for representing an environment that has progressed beyond the nature/culture binary? Within the last few decades, there has been a reevaluation of the arts, as digital technologies permeate the fields of film, cinema and theatre. The impact of that influence has created new questions about the arts and their place in a wider society. Some theorists have argued that digital media has become fully absorbed into our culture, beckoning the post-digital age. The importance of how natural environments and non-human animals are represented in the digital sphere is crucial to how we engage with and respond to the environmental crisis today.

Digital cartography and Google Street View

Google Street View (hereafter GSV) is a digital application that was launched in 2007 and enables the user to zoom in from the traditional cartographic bird's-eye view to an immersive 360°-street-level environment. The result, with its continuous and frictionless interface, is a virtual version of a cartographic tool where the user can immerse themselves fully in a panorama of their chosen environment. These ostensibly seamless horizons are captured using stitched-together images taken from Google's infamous street view cameras on 2.5-metre photographic masts attached, for the most part, to the roofs of various vehicles. The resulting images can be unsettling and quite often provoke a voyeuristic response in the viewer. Most notably, the incidental and everyday actions of individuals are captured in the harvesting of countless images by Google's cameras. Almost immediately, artists began to appropriate these images into their own artwork. Artworks, such as those discussed in this chapter, have emerged that use this technology to explore the social implications of GSV. Most particularly the unveiling of glitches that are captured by GSV unsettles the seeming objectivity of the camera and upends the balance of power and control that is then transferred back to the social practice of mental mapping: a cartographic practice gleaned by moving through the landscape.

One of the defining features of GSV is its adherence to the narrative logic of human

organization. As Sarah Pink writes, GSV images are ‘consumed through the experience of movement across the screen, and it is here that the question of the interconnected senses becomes most central’ (2011: 11). GSV is experienced through a sense of movement. The fused images are not static but streamlined as the user flows from one environment to another: ‘Google Street View offers another perspective, which is closer to the metaphor of knowing in movement. It affords viewers possibilities to use their existing experiences of environments to sense what it might be or how it might feel to move through the “real” locality represented on screen’ (2011: 11). In that respect, online environments such as those experienced through GSV (and VR) can be analysed through the lens of place-based discourse. The tension between embodied mapping through movement and the seemingly objective practice of observation using GSV as an all-seeing eye illustrates the fraught relationship between technology and bodily materiality. Negotiating a landscape has been the subject of many technological innovations (such as surveillance), and there has been an emergent aesthetic that explores the themes of technology and observance in contemporary art practice.

Building on a history of street and field photography (as seen in the works of Paul Strand, Walker Evans, Dorothea Lange and Robert Frank), but also emphasizing the vastly different scale that GSV generates, artists sought to incorporate into their work not just the differing viewpoints that the technology offered but also the vast archive of strangely disconcerting images of the everyday. This section will examine the impact of GSV on how landscape (and our place within it) is represented and the repercussions for the aesthetics of space in our contemporary digital culture in the work of photographers Michael Wolf, Doug Rickard, John Rafman and Emilio Vavarella. The impact of digital applications such as GSV on aesthetics is a new phase in an ongoing conversation between artists and technology. The use of a distinctly digital aesthetic in an artwork allows the artist to comment directly on what is arguably the most fundamental and groundbreaking change in our contemporary culture: digital technology and its corresponding applications. The work that develops and emerges organically from that tension between art and technology is a crucial one to unpack, particularly given the repercussions of the emerging digital aesthetic on what is becoming a crisis in spatial and environmental discourse.

What these images are in terms of their genre is also a pertinent one. They sit somewhere between photography and photomontage. Not without controversy, artist Michael Wolf received an honourable mention at the World Press Photo Awards in 2011 for his project *Street View: A Series of Unfortunate Events*. The series was constructed by taking photographs (of his own computer screen) of GSV images that he had chosen from the application. This new-found ability to take street photography without actually being out in that specific environment ushered in new conversations about the issues of voyeurism and surveillance based on the use of an image intended for one purpose but appropriated for artistic reasons. The images were appropriated without the permission of the subjects, and while the faces of the figures in each image are blacked out (as they would be in GSV), there is in the series a confirmation of sorts that the strange juxtaposition between the voyeurism of

the viewer and the anonymity of the participant evokes a tension between technology and subjectivity. The anonymity of the subject in the image suggests that both the unknowability of the other and the pervasiveness of technology are an important factor in drawing attention to the issues of societal injustice as seen in social documentary.

Another instance of social documentary where GSV data sets were used to explore themes of injustice captured by technology is Doug Rickard whose exhibition, *A New American Picture*, depicted the desolation and isolation of communities that live below the poverty line. These gritty surveillance images depict the intense isolation and trauma of figures that are marginalized. But they also speak to a history of social photography that can be seen as exploitative: capturing and framing the lives of the less fortunate for the singular purpose of creating a visual aesthetic. Whereas this method of documenting the less fortunate has been confronted with this criticism historically, the use of GSV data sets brings the moral ambiguity of the practice to the fore. In many instances, for example, there are images taken that capture an individual in inappropriate situations or behaving suspiciously or aggressively either for the benefit of the GSV camera or without any awareness of it. Although the notion of surveillance and the tools that make up part of the surveillance apparatus (such as CCTV) have been around for a few decades, only recently has the technology allowed for complete tracking of an individual's movements. An early example of an artistic response to surveillance in new media was the *iSee* project created by anonymous activists at the Institute for Applied Autonomy in 2004. The activist group created a web-based application that contained user-generated data which established the positions and tracking of surveillance cameras in New York. Users marked the beginning and end point into the online software and were instructed as to where the points of surveillance along their journey were situated. They could then print off a map so as to avoid being within the range of the cameras. The artwork was intended to comment on the pervasive increase in social control and how the individual can potentially resist that wider state (and anonymous) surveillance that has become pervasive in public spaces.

While surveillance is clearly an important theme in artworks that draw on digital technology, particularly applications such as GSV, the spatial or cartographic element is also evident. While the material gathered by Google is essentially extraneous data in the form of images that correspond to a particular point in a geographical area, the markers are placed in a way that allows the user to visualize the map as an embodied spatial experience. Exploring the earth from a global or god's-eye perspective plays a large part in nature aesthetics historically. Early modern attempts to understand the cosmos is evident in grappling with the displacement of the earth and the expansion of the universe in works such as Copernicus's *De Revolutionibus Orbium Coelestium* (1543) and Galileo's *Dialogo sopra i due massimi sistemi del mondo, Tolemaico e Copernicano* (1632). It has been argued that the scientific revolution of the Renaissance and early modern period has been largely influenced by the artistic development of linear perspective (Panofsky, 1927; Edgerton, 1975; Alpers, 1983). Albrecht Dürer had co-created (alongside cartographer Johannes Stabius and mathematician and astronomer Conrad Heinfogel) two-star maps in 1515 from the vantage point of the

Northern and Southern hemispheres which depicted the 1,022 stars in Ptolemy's *Almagest*. (Written by Claudius Ptolemy in the second century, this catalogue of the stars was the accepted astronomy model until Copernicus.) Understanding where we, as embodied and material entities, sit within the wider landscape is an old question. These images of Wolf, Rickard and Vavarella all frame or emphasize the everyday omnipresence of surveillance, not only triggered by us but also pervasively present in the landscape with or without human presence. GSV has a structure in place that seeks to capture incidental behaviour in contrast to, for example, criminal behaviour. It is a step further in the use of technology in gathering vast amounts of data for largely nondescript purposes.

Contemporary artists have, in recent years, wrestled with how to represent scientific data in their work. Diana Thater's *Six Color Video Wall* (2000), for example, is made up of six plasma screens displaying slowly rotating suns. The images were digitally animated from a sequence of NASA photographs taken by the Solar and Heliospheric Observatory (SOHO). The images had already been separated into the component colours, red, green and blue (for scientific investigation), and Thater added the complementary colours, cyan, magenta and yellow. John Klima's installation *EARTH* (2001) goes further with a geospatial visualization system that uses data layers (from geographical surveys, satellite images, weather patterns etc.) projected onto a spherical ball in stratified layers. More recently Chris Milk has made an online interactive video piece in collaboration with musicians Arcade Fire called *The Wilderness Downtown* (2011). Written in HTML5, and using GSV and Google Maps API, the short film allows the user to enter the environmental landscape of memory. After typing the address of your childhood home into the browser, the interactive video allows the user to be a part of a personalized video experience. The technology intersects with the users' personal memories of a particular environment in a fascinating new layer that can be added to the personal online archive of an individual's life. These examples illustrate the move in contemporary art to harness scientific discovery to comment on landscape and environmental representation.

An artist also using the same material is Jon Rafman. Rafman has exhibited found images gleaned from GSV in his collection *9-Eyes* (2009–ongoing) which has been exhibited online and as an exhibition (*The Nine Eyes of Google Street View*) in the Saatchi Gallery, London. The number '9' in the title refers to the number of cameras that are mounted on the cars. The artist trawls through the GSV data to find surprising instances that capture the surreal moment when someone (or something) is caught unaware, echoing the uncanny notion of unveiling. Images such as *A reindeer running down Rv888, Norway, 2010* record a moment that would otherwise have escaped the viewer – that of a reindeer running down a stretch of highway between Bekkarfjord and Hopseidet in Norwegian Lapland. His images are untouched leaving, for example, the Google navigation tool at the top left-hand corner of the image. As the artist commented,

The work is connected to the history of street photography [. . .] but also to the 20th-century ready-made movement. So leaving those artefacts in the image is extremely important. In the bottom-left corner of each picture is a link that says, 'Report a problem'. Maybe in the

middle ages you passed somebody in trouble on the road and were confronted with the moral dilemma of whether to help them. Then came a time when you could call the police. Now we've reached the point where it's a hyperlink. That represents just how alienated we've become from reality. (in Walker, *Independent*, 25 July 2012)

The process illustrates how digital tools are being used to expand what our idea of the other-than-human world is.

An emergent intersection between GSV technology and art is the digital glitch or error. The art of the digital error is the ultimate enactment of the naturally emergent art form. Its use in glitch art is an important reminder that media art can not only endlessly replicate but also create an image that is representative of a digital world. One of the striking aspects of the use of GSV technology is the emergence of a frailty or a notion of disconnection brought about by the mistakes or glitches that seep into what is otherwise an omnipotent and global technology. A project that highlights the decentralized and participatory nature of glitching and how it intersects with digital technology is Emilio Vavarella's *The Google Trilogy*. This three-part project consists of *Report a Problem*, *Michele's Story* and *The Driver and the Cameras* that feature GSV technology. The series uses technology to explore themes of cartography and power as Vavarella writes on this website, 'The end-goal of Google mapping is nothing more than the oldest archetypical obsession of any mapping effort: that of mapping a territory until the map itself becomes a territory in its own right' (<http://emiliovavarella.com/archive/google-trilogy/>). There is an attempt in the process of mapping and representation to make new worlds, and this distancing is where the tension emerges between the subject of the technology and the communality or empathy that emerges in social documentary.

The first, *Report a Problem*, is a series of 100 digital photographs that plays on a feature in the GSV screen that allows the user to report technical errors. Vavarella travelled to the (online) landscapes where an error had been reported and used screen capture to preserve the image before Google repaired the glitch. Errors such as these often result in unnatural imagery and intense, vivid colours that would not be found in natural landscapes. These glitched landscapes resonate as fractured segments of imperfection in an otherwise streamlined software program. The series is colourful largely due to the errors in colour attribution that run through the photographs. There are washed-out rural and urban scenes and, in each photograph, the omnipotent Google buttons frame and surround the landscape. The scene is heavily mediated and functions in contrast to perhaps a traditional landscape where the aim is to immerse the viewer in the environment. These street view images seek to remind the viewer that no matter how extensive the available information is on a landscape (bordering on VR), it is still a representation and mistakes happen. The hyper realism offered by the digital technology in this case falters as if to break with conventional relationship between the digital environment and our experience of the material (or at least non-digital) one.

Ingraham and Rowland point out that resistance to the ubiquitous use of GSV surveillance has emerged in the form of 'microactivist performance-events by people who stage tableaux

vivants for the passing GSV cameras' (2016: 212). Their research examining performance that occurs for and in front of GSV cameras, such as Kelly Gates's *A Street with a View* (2008), notes that Jon McKenzie's definition of machinic performance which incorporates cultural, organizational and technological performances is an apt descriptor for the phenomena of the interaction between the GSV camera and those resisting the surveillance that seems intrusive and totalizing. McKenzie draws on Deleuze and Guattari to name this phenomena 'machinic performances' where 'occurrence is distributed . . . at multiple sites through multiple agents, both human and technological' (2005: 23). For Ingraham and Rowland, these machinic performances denote the 'dispersed assemblages that exemplify the entangled nature of cultural, organizational, and technological performance types' (2016: 216). Jon McKenzie labels the active resistance to technological surveillance, as seen in these performances that subvert the assumed objectivity of digital technology, as hacktivism. This expands on the notion that hacktivism, what McKenzie describes as 'electronic civil disobedience', is a form of social activism: 'I will define machinic performances as arising whenever different processes "recur" or communicate across diverse systems, thereby creating performances that escape subjective control and even objective analysis' (2005: 22). Whereas McKenzie discusses machinic performances in relation to the 1986 Challenger Shuttle Disaster, for Ingraham and Rowland, the GSV performances can also be categorized in the same manner because they incorporate not just the cultural and organizational but also the technological performance, given the clear cooperation with Google. They write,

This is not just a matter of supposing a distributed agency to coexist between people and things, but of acknowledging that machinic performances transpire across the wider territory of biopolitics and the control over life and non-life. It is no wonder, then, that some of the most intense performances undertaken for GSV cameras have involved staging tableaux vivants of life and death itself. (2016: 217)

The same emphasis is evident in *Michele's Story*, Vavarella's second instalment in *The Google Trilogy*. These performances, under the omnipresent gaze of the GSV camera, reflect the embedded body in a network of information and data dispersal and retrieval that has become the defining feature of the technological age.

Michele's Story is the second installation in the project and a collaboration with Michele, a paralyzed man with memory damage. GSV, in this case, is used to 'precariously reconstruct a single human journey by recovering snippets of stolen and dehumanized life' (<http://emiliovavarella.com/archive/google-trilogy/micheles-story/>). The collection points to the instability of memory and quite often its reliance on visual aids. Issues of ownership, censorship and how the user can extrapolate or create narrative from the use of such technology arise and are treated in these artworks. *Michele's Story* and, indeed, all three instalments in the project rely on the mapping systems produced by a private company.

Just as Google has taken control of urban and rural environment totalizing their monopoly on the control and organization of data, there appears to be a crack in the polished gleam that is their digital view on the world. There are mistakes that highlight the vulnerability of the

technology that has become so pervasive in our lives. The power of Google software is in its seamlessness and ease of use. As Ingrid Hoelzl and Rémi Marie have pointed out, the use of Google maps as the default global mapping system has emerged from the company's 'ability to reconcile the cartographic and photographic modes of representation' and on 'its ability to build the technical tools that allow a smooth "landing" from one to the other, as if they were and always had been operating in the same symbolic space' (2014: 261).

The glitches that crop up in the functioning of the software prove to be a fertile ground for appropriation by media artists. The project, and many others, disclose the fallaciousness of Google software. The final installation in the series examines the use of blurring to disguise facial features and the (relatively frequent) system error that overlooks faces. *The Driver and the Cameras* is a series of photographs that have escaped Google censoring procedure to protect identity. The technique has been used before by, for example, artist Michael Wolf's *Fuck You* series in 2011, which consisted of a sequence of shots capturing people sticking their finger up at the camera. The images that Vavarella uses, however, are of the drivers of the GSV car, who are wilful participants in the use of the Google mapping software. This blurring of facial features and other identifiable data refers the viewer back to the construction of the image. As Hoelzl and Marie write, 'the digital artefact – the stuttering and stammering of the image, as Deleuze would argue . . . can be understood as the manifestation of a digital aesthetics that is medium reflexive, in the sense that it reflects the means by which the image has been processed and distributed' (2014: 264). The opening up of the framework upon which the image is built is a core constitute of this type of glitched art. On the one level, it reveals the underpinning of information that is generally thought of as objective, and on the other, its portrayal of the landscape, and the actors within it, revel in a type of beauty that is a part of the consistent failure to capture landscape in any real and meaningful way. It is worth returning to Hoelzl and Marie as they aptly argue that media art has changed the assurance with which the image of our surrounding environment could be fixed:

Somewhere along the temporal process that led from the stable subject-object relationship of the modern era to the mutable object-object relationship of the digital era, the fixed relation between world and image that underpinned the photographic paradigm of the image was gradually replaced by the dynamic relation between data and data that is the foundation of the algorithmic paradigm of the image. Somewhere within this cybernetic data-to-data relationship, the image still intervenes. (2014: 266)

This is one of the defining features of the art practice that is immersed in digital technology. Where the image and digital technology intersect is now an 'unstable algorithmic configuration of a database in the form of a programmable view' (2014: 266). The essence of the glitch in art that intersects with digital technology is to frame that instability in the form of an image. Vavarella describes a glitch as 'a sort of digital fingerprint of a particular technology' whose use is directly linked to the 'technology from which it derives' (11). The machine is essentially a collaborator in the process that allows for different avenues for

representation that the artist would not have otherwise considered. For Vavarella, ‘a glitch reveals what lies beneath the apparent visibility and fluidity of the technology surrounding us’ (2015: 11). And technology is pervasive, not just in surrounding the human as subject but as a significant moment. In her book chapter ‘Re-thingifying the Internet of Things’, Jennifer Gabrys mentions 2008 as ‘the year when Internet-based machine-to-machine connectivity surpassed that of human-to-human connectivity’ (2016: 184). The sheer volume of data that emerges from the internet and the networks that operate independently from humans within that modality are testament to the groundbreaking phenomena that the digital art aesthetic encompasses.

Vavarella’s *Report a Problem* and *The Driver and the Cameras* are examples of how glitches intersect with the internet as an immense database: an ecosystem in itself. Within this ecosystem, the errors that are made should be seen not in a negative sense but as an open and fruitful version of the multiplicities and complexity that celebrates difference and divergence. If anything they look to the uncanny impact of a memento mori in conventional art practice and serve to call attention to the materiality (and mortality) of the viewer. In *Report a Problem*, the glitch in the landscape reminds the viewer/user that these images are aesthetic renderings of landscapes, but it comes with a built-in option to correct or report an issue as the viewer sees it. As with the interdependent internet of things, correction and regulation is dispersed throughout the system. The opportunity to report a problem means that the images that were produced with a mistake built into them are to be rectified and discarded. The sanctification of discarded images is not new in historic process-based art movements. What is different here is the direct relation between the system and the user. In the original sense when the user reports the problem, the system can fix the error. In the second sense, there is no such recourse and the glitched image is appreciated as a work of art rather than a discarded item.

With *The Driver and the Cameras* the onus is on the driver of the GSV vehicles to avoid the stitched images that the GSV camera takes. Even if their faces are blurred by the face recognition technology, there is a sense that the mistake is not just on the part of the technology but also because of the human element. As both attempt to uphold the structure of which they are a part, through the exposure of the glitch and the revealing of the driver, the system itself is called into question. These glitches show that GSV is far removed from the seemingly objective cartographic experience of aerial photography for example, and falls more naturally into our desire for narrative. As Aaron Shapiro points out, it is the street-level imagery that differentiates GSV from other cartographic methodologies:

Whereas aerial imaging and its vertical gaze provide a disengaged ‘view from nowhere’ of the earth’s surface and the array of human activities that take place there (civilian and military, urban and infrastructural, natural and meteorological, etc.), street-level imagery is always explicitly grounded in a somewhere; its emphasis on the particularities of place rather than cartographic abstractions of space makes it seem progressive, absolved from the visual-semiotics of scientific rationality or objectivity. (2018: 1202)

GSV makes a landscape much more real in the mind of the viewer than aerial imagery and so is more fitting as an authentic representation of an environment. The experience is not unlike moving through a digital gaming space. It can be seen as soothing and easy to understand; the viewer is intrigued and drawn into the image by the human figures. It follows conventional narratives outlines: Who are these people? What are they doing there? The glitching of the image reminds the viewer that this is not a conventional image; it can be manipulated to reverse the outcome that created these particular forms. Algorithms can search for faces and blur them out. GSV can and has contributed to the study of big data. Data harvesting has generated new ways of categorizing spaces which can act detrimentally in many ways engaging in the type of place-sorting that reinforces racial and social bias. As Shapiro writes, ‘virtual mapping applications like GSV illuminate novel configurations of sociality and surveillance that both promise and threaten to reorganize social landscapes, to reaffirm or undermine our normative categorizations of space and place’ (2018: 1215). Glitching is just one method for teasing out the assumption of infallibility that is evident in much algorithmic data.

These are images garnered or instigated from errors in a system that is thought of as being in the service of human beings and yet glitch art reveals a more independently minded if not essentially self-serving system. *The Google Trilogy* clearly shows a digital and pixelated aesthetic and some pieces (*Report a Problem* and *The Driver and the Cameras* more so than *Michele’s Story*) show the random error occurrence that is the defining feature of glitch art. There is an element of the tinkered with – that hacktivist element mentioned earlier – that essentially emerges from the glitch but is incorporated within the broader digital aesthetic. The mistaken images of the GSV drivers or landscape speak to a subjective relationship that is uncertain and where memory and sensory embeddedness cannot be assured. Landscape is, no doubt, a real and vital subjective experience. However, as that experience is interlaced with ever-growing virtual experiences of the environment, it is important to think about the blurred lines between the real and the virtual and, in the case of computer-mediated landscapes, the very material network that facilitate that experience. As Lisa Parks argues,

If we are willing to take seriously the fusion of the biological and the technological, it is important to consider not only how consumer electronics become human prostheses but also how automated facilities on the outskirts of cities that are dug deep into the dirt and surrounded by plants and wildlife – seemingly in the middle of nowhere – are integral to broadcasting in the digital age. (2016: 157)

Embedding landscape representation in its material networks allows for acknowledgement of the materiality of both the landscape and the networks that offer the user unmediated access. The history of representing the landscape in the visual arts reveals its significance as a tool for human identity construction and ideologies. Parks points out this dynamism connecting landscape to social practices, arguing that ‘rather than approach Earth-observing practices only as *representing* infrastructure sites and processes, we need to understand these practices as *performative acts* that have different relations to time, which need to be specified and

considered' (2016: 157; emphasis in original). These artists use digital technology to deconstruct and interrogate traditional conventional notions of the landscape and the cartographic tools used to represent it. The artists featured have created innovative and significant new ways to explore, inhabit and ultimately represent the landscape for a new digital age.

There is a new sublime that is filtered through the process-relational aesthetic of eco-digital art. We can interpret the digital sublime as a technology that bears the extensive potential to dominate the human populace. Its enormity, thanks in part to its global prevalence, is connected to the natural sublime in decentering the human subject. Olafur Eliasson, for example, known for his large-scale installations, such as *The Weather Project* (2003) at the Tate Modern, sees media art as a means to transmit very site-specific artworks through global networks (Figure 4).



Figure 4 Olafur Eliasson, *The Weather Project* (2003). Monofrequency lights, projection foil, haze machines, mirror foil, aluminium, scaffolding 26.7 × 22.3 × 155.44 m installation view: Tate Modern, London, 2003. Photo: Tate Photography (Andrew Dunkley and Marcus Leith). © 2003 Olafur Eliasson.

He writes that

When you have an idea, you are incredibly local because it's just you and your surroundings. Then there is the process through which the idea is in almost global

conditions because it's digitally distributed. Then when somebody actually gets involved with the project or the work of art, it is again local. That person might be sitting in front of a screen, maybe in a school, or in their home, or in a public space, and their experience of the work of the art is a local experience. (www.thespace.org/)

The Weather Project, Olafur Eliasson's installation in the Turbine Hall, immersed the gallery audience with sunlight, or at least the experience of it. Eliasson used technology to feign natural sensations and construct a world for the public to interact with. Recreating natural phenomena is also evident among artists such as Alister McClymont who recreated a cyclone in *The Limitations of Logic and the Absence of Absolute Certainty* (2008), Lawrence Malstaf who replicated a typhoon in *Nemo Observatorium 02002* (2002), and Tomás Saraceno who has worked with spiders to produce webbed sculpture cubes into the gallery space. The work is the triumph of the mechanical or mediated representations of nature. We realize the staging or framing process and our part in it. We are so far removed from authentic experiences of nature that a simulated nature is as real for the viewer as material interaction with the wild spaces of other-than-human nature.

This large immersive experience simulates natural events from within the deeply cultural world of the gallery space. Visitors have an emotional response to this immersive experience, and the act of sunbathing becomes a shortcut to the sensory interaction with nature that some art forms can offer. This type of immersive work illustrates the fact that digital tools have devised a condition antithetical to authentic experiences of nature and the environment. This is because any preceding involvement with other-than-human nature has been so heavily mediated and framed by cultural filters that to claim an accurate understanding of nature is disingenuous. Jill Bennett points out that Timothy Morton's philosophy of aesthetics (which asserts that historical depictions of nature are the idealized fallout of romanticism) is associated with an 'art historical scepticism of the appeal of immersive art' (2013: 109).

Bennett explains that the phenomenological realities of art evident in much contemporary art installations 'amount[] to an unreflective indulgence of a media derived techno-sublime: a faux "phenomenology" based on empty sensation' (2013: 109). Whether images of natural phenomena such as *The Weather Project* and *Fuji* make us better aware of art-historical framing devices or oblige us to encounter a truly immersive experience, their impact indicates that media art is still ensconced in the idea of the sublime, and yet the glitched images used in the photographed landscapes of artists such as Rafman point to a more complex relationship between the self and the landscape.

In line with Morton's interpretation, computer-generated artworks are indicative of our contemporary lifestyles. Morton's central contention is that there is no nature, that the condition of modernity is that both man and environment have become mechanized. This labour is obscured and aestheticized and has resulted in the creation of 'Junkspace', a phrase that Morton borrows from Rem Koolhaas's term for the contemporary condition of modernity. He argues that 'Capitalist thinking, and Capitalist machinery, actively "disappear" the workers who operate it. . . . Humans "man" the machines: more than ever, human beingness is now revealed as a product of mechanical processes' (2007: 86–7). Living in this

junkspace has resulted in a specific type of art. What Morton calls automation affected art where ‘repetition builds itself into the process of artistic production, both externally, as mechanical reproduction (and consumption) generates thousands of iterated copies, and work processes are stereotyped; and internally, as repetitive forms begin to become the content of art’ (2007: 87). The type of art this environment provides is reflective of the displacement of the attempted authentic depictions of nature. Instead we have artworks that pick apart the faux sentimentality of the conventional artistic methods in favour of an overlaying of motifs with the potent imagining or indeed becomings of the digital world. Perhaps this is a belief in the system of production without the ideologies of romanticism and artworks that are based solely on the mechanical process. Not that this is a new idea. Hannah Höch recounts in an interview with Edouard Roditi that the 1920 Berlin Dada fair featured slogans on the wall reading ‘*Die Kunst ist tot. Es lebe neue Maschinenkunst Tatlins* (Art is dead. Long live the machine art of Tatlin)’ (1971: 72). (Tatlin refers to Vladimir Yevgraphovich Tatlin, a Russian artist in the constructivist movement of the 1920s.) Since the publication of Marinetti’s *Futurist Manifesto* in 1909 envisioning ‘violent electric moons’, the art of the twentieth century has attempted to represent the emerging technology of its time (2003: 148). All artistic forms (even artistic depictions of nature) have been generated through this technological and heavily mediated filter.

Perhaps the shift from conventional art practice to a process-driven model augurs a mode of artistic representation that consolidates the technological with the material. Material immersion has now grown into part of being in the digital environment, establishing worlds within VR, to take one example. The ever-changing depiction of place, in the aesthetics of art, gives us the opportunity to see ourselves as garnering different modes of knowledge of the other-than-human world. Modes of knowledge that force us to think more ethically about our environment, as Karen Barad urges us to take ‘account of the entangled materialisations of which we are a part, including new configurations, new subjectivities, new possibilities’ (2007: 384). The successful representation of other-than-human nature in media art harnesses the potent resources that digital technology provides to create increasingly lifelike virtual worlds.

Notes

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