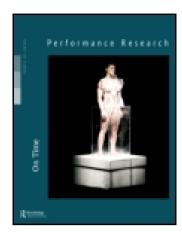
This article was downloaded by: [Sarah Bay-Cheng]

On: 18 August 2014, At: 07:21

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41

Mortimer Street, London W1T 3JH, UK



Performance Research: A Journal of the Performing Arts

Publication details, including instructions for authors and subscription information: http://www.tandfonline.com/loi/rprs20

'When This You See': The (anti) radical time of mobile self-surveillance

Sarah Bay-Cheng

Published online: 13 Aug 2014.

To cite this article: Sarah Bay-Cheng (2014) 'When This You See': The (anti) radical time of mobile self-surveillance, Performance Research: A Journal of the Performing Arts, 19:3, 48-55, DOI: 10.1080/13528165.2014.935168

To link to this article: http://dx.doi.org/10.1080/13528165.2014.935168

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at http://www.tandfonline.com/page/terms-and-conditions

'When This You See'

The (anti) radical time of mobile self-surveillance

SARAH BAY-CHENG

As information itself becomes the largest business in the world, data banks know more about individual people than the people do themselves. The more the data banks record about each one of us, the less we exist.

Marshall McLuhan (1970:12-13)

Of all the things computer technologies have changed, few are more fundamental than the effect on time of digital culture. Theorists such as Paul Virilio, Alice Rayner and others have argued that digital domains - still sometimes quaintly known as cyberspace - displace conventional notions of space and time, turning digital realms into virtually unlimited spaces that exist within a perpetual 'now'. But even among the earliest formulations of computer technologies, the function of time was seen as significantly changed. 'Time in the digital universe and time in our universe are governed by entirely different clocks,' writes George Dyson in Turing's Cathedral: The origins of the digital universe (2012:x). 'To an observer in our universe,' he writes 'the digital universe appears to be speeding up' (Dyson 2012; xi). As digital technologies are ever more closely connected to our every part of our daily life and integrated within our bodies, culture reflects the temporal effects of digital time. In hyper-connected, digitized culture, digital media have become an increasingly ubiquitous presence, such that the existence of a single moment in time is replaced by a continuous state of being. Take, for example, journalist Dan Lyons's report from the 2012 International CES (the Consumer Electronics Show):

The first Internet was a place you went to. You dialed up or logged in. It was over there, and you were here. The new Internet is just here. It's all

around us. It's constant, ubiquitous and pervasive. We interact with it so naturally that there seems to be no user interface at all. The new Internet is in our phones and in our homes. It's in our refrigerators and thermostats and cars. It's on our bodies. We ourselves are actually part of the Internet. We're woven into the very fabric of it. (Lyons 2013)

This temporal effect is the focus of Jonathan Crary's recent book, 24/7: Late capitalism and the ends of sleep (2013). In it, Crary frames his consideration of contemporary society and its ubiquity of digital devices within their radical changes to temporality. While acknowledging that no single individual can actively participate in a constantly available digital environment, Crary nevertheless warns that, 'since no moment, place, or situation now exists in which one can not shop, consume, or exploit networked resources, there is a relentless incursion of the non-time of 24/7 into every aspect of social or personal life' (Crary 2013: 30). Crucially, he adds: 'There are, for example, almost no circumstances now that can not be recorded or archived as digital imagery or information' (30-1). Thus, we see a kind of cycle emerging. Technological advances (smaller and faster smartphones, for instance) create the conditions for 24/7 culture. while this environment simultaneously creates a sense of loss, of time moving too quickly to fully capture one's experience as it happens. Against this threat of memory loss, of knowing what's happening around you, new applications ('apps') and technologies, smartphone cameras, photo-sharing apps and software, and new hardware offer the ability to record what we cannot remember or perhaps even perceive

in the moments. These technologies become increasingly necessary to comprehend moments of experience that strain the resources of human temporal perception. But at what cost?

As I argue here, these temporal changes create an environment in which the threat of loss becomes so great that many of us are willing to sacrifice most of our most basic privacies to ward off this loss. This sacrificial phenomenon is perhaps nowhere more evident than in contemporary surveillance. For most of the twentieth century, surveillance primarily took the form of super-vision of the State, what Foucault described as a panopticon of disciplinary vision, an 'enclosed, segmented space, observed at every point, in which the individuals are inserted in a fixed place, in which the slightest movements are supervised, in which all events are recorded' (2012: 197). The updated models were clear enough - the so-called 'Big Brother', closed-circuit television (CCTV) cameras, and records in data banks compelled through financial transactions and national identification cards. These tracking systems recorded discrete, individualized moments of surveillance. There was a specific moment when your data was recorded within the system, as in a credit card purchase or border crossing, but there were also other times when you were not actively being recorded within large networks of data. Put another way, there seemed to be at least some time out of surveillance sight.

With the advance of new mobile technologies, however, both ocular surveillance and digital data surveillance (sometimes called 'dataveillance') are recorded unceasingly through global positioning system (GPS) devices, mobile phones connected by Wi-Fi and cellular networks, often containing information readily 'shared' through social media applications. This latter form of surveillance, what I refer to here as 'self-surveillance', is far more insidious than its predecessors. As critics since the early 1990s have observed, pervasive computer technologies create echoes of our identities as amalgamations of data - also known as the data double or the data-body - that may supersede physical and material



Julian Oliver, 'Border Bumping' at US-Canadian border in Buffalo, NY (2013). © Matt McCormick 2013.

identities, operating in a digital context that is always now and distributed across multiple spaces simultaneously. These developments appear to intertwine Foucault's loci of power and erode the distinctions he perceived in different power structures. We must remember that Edward Snowden was an employee of a private government contractor with extensive access to government data collected from personal transactions acquired by publically traded companies. If Snowden's revelations demonstrate nothing else, it is the lack of meaningful distinction between government and corporate surveillance systems, and the dissolution of boundaries between public and private on multiple levels.

As a temporal condition, this reverses previous conceptions of what critics have observed as the present in theatrical time. As Alice Rayner has argued, both performance and digital technologies 'materialize the "now"' (2002: 360). However, self-surveillance extends this relation such that the ubiquitous now of constant computing has transformed most of our daily experiences into performances. McLuhan was the first to apprehend this idea and it is no coincidence, I think, that he articulated his concern about satellite technology and surveillance within the same book that also raised questions of data banks and information as currency cited in the epigraph to this essay. For McLuhan, the advent of surveillance through satellite technologies transformed the experience in the world into a perpetual moment on stage, one in which every person on Earth had become - willingly or not – a performer. According to McLuhan, satellite vision – like computers, a consequence of the massive military computing efforts of World War II – eliminated 'nature', turning

'the globe into a repertory theater to be programmed' (1970:9). Significantly, not only space was transformed – from natural to performative – but performance time exceeded the confines of the theatrical frame such that every moment would become a performance moment continuously recorded and observed through the omniscience of orbiting satellites.

Although responding within a different historical moment and reflecting upon distinct technologies (albeit deployed to very similar ends), Jonathan Crary's recent 24/7 similarly frames technological transformations as disruptions of human perception, specifically the ubiquity of technology (always here) as an erosion of human-centred temporality. Working through the effects of ubiquitous computing in late capitalism, Crary notes the myriad ways in which new technologies have colonized nearly every moment of a 24-hour cycle, fundamentally undermining human rhythms of sleep and waking. Like the ubiquitous satellite vision that can never be turned off and therefore eliminate the potential of nature outside this mechanical vision, these wireless technologies annihilate 'the singularity of place and event', coopting every moment into a continuum of digital engagement (2013:31).

Of course, new technologies have always changed our relation to our sense of the contemporary, to the 'now', shaping and being shaped by both individual and collective relations to our place and time within a historical moment. Media historians, such as Lisa Gitelman, have focused on the cultural history of data technologies, noting that media are never entirely revolutionary: '[N]ew media are less points of epistemic rupture,' she argues, 'than they are socially embedded sites for the ongoing negotiation as such' (2006:6). We are never so much engaged in a battle with technology as we are engaged in social and cultural battles within our technologies. Rather than argue against these technologies or simply repeat warnings about the ever-expanding loss of privacy rights, then, we would do well to evaluate the function of self-surveillance conditioned in and through social media as

performances. By understanding the ways in which social media both constitute and condition certain types of performance, we can better understand how these technologies function at a cultural and social level and suggest performances that may work against the very threats they pose.

In light of the recent revelations of the National Security Agency's (NSA's) programme PRISM, we may finally become aware of the consequences of this mass distribution of the self. What we may have thought of as ubiquitous computing has been revealed as ubiquitous collecting. My interest here concerns the self-surveillance as a kind of compulsive performance. That is, our engagement with social media is 1) always a kind of performance, and 2) a performance that is constructed specifically for surveillance and often compelled by it. And, as I argue here, what compels these performances specifically is a very specific temporal threat. That is, like all photographs, these instant digital photographs are a hedge against potential losses of the future - chiefly memory - but also are compelled by the need to establish the present not only for the future, but to bring the current moment into being. Unlike previous visual artefacts that sought to document moments of the past for consumption as memory in the future, these rapidly produced images function less like records or artefacts and more like items of exchange. They are not produced for the future, but circulate in real-time as ever-evolving markers of the self, a fact recognizable in their very nomenclature. Instagram, to cite only one popular example, combines the concept of the instantaneous with the previously (and sometime laboriously) written telegram. If Woodrow Wilson once referred to cinema as history written in lightning, perhaps we can consider Instagram as history written as the speed of light waves (Rollins 1998:88-108).

For my purposes here, I define social media broadly to include any technology or software that draws on user-generated content and horizontal distribution, that is, 'sharing' mostly through Internet-based applications.

As the oxymoronic term 'social media' implies, website and Internet-based environments such as Facebook, Twitter, Tumblr, and YouTube, among others, both facilitate social connections and mediate these connections. This online context - what some have called a digital culture - has raised any number of social, ethical, psychological and aesthetic questions throughout its development. What is particularly striking in light of the recent revelations - the NSA's massive datamining collections, the Federal Bureau of Investigation's (FBI's) domestic use of drone surveillance, the porous boundary between the government and the private contractors who are extracting our data, and the lack of consequences for congressional perjury - is how much these environments not only rely on user-generated content, but also condition and compel a particular kind of user-generated context. The pleasures of online connection and connectivity, it seems, have conditioned us to track and document - surveill - ourselves.

My reference to self-surveillance comes from Susan Sontag's (1973) Photography, where she described video's potential to be turned towards narcissistic 'self-surveillance', an idea somewhat jokingly referred to in Nam June Paik's mixedmedia installation 'TV Buddha' (1974), but that has more deeply penetrated culture since then (Sontag 1977:177). Although surveillance of the self seems semantically contradictory, like Paik's Buddha, we seem to spend a lot of time looking at ourselves on screens. More common, I suppose, is to distinguish surveillance observation from above, often through the apparatus of the state or paramilitary quasiofficial authorities from both reality and fiction from sousveillance - viewing and documentation from below. Steve Mann was among the early pioneers in sousveillance, and we can recognize echoes of this in both the Google Glass and the recently released Memoto camera (now renamed the 'Narrative Clip'), a device that automatically takes a picture once every 30 seconds as long as it is worn. The Memoto/Narrative camera a pleasingly colourful little device developed in Sweden – presents itself as a compensation for

memory, an effortless way to collect and store memories on the go when you cannot be relied upon. As the company's advertising suggests: 'Relax. Take it easy. It's not your fault you don't remember' ('Narrative – Remember Every Moment' 2014).

What is striking about many of these emerging technologies is that they enter the mainstream commercial markets designed neither to facilitate a voyeuristic attention nor to enable the passive consumption of images (as Guy Debord and the situationists worried they would). Contrary to the modernist project of voyeuristic super-vision, as epitomized in Man Ray's radical camera vision, Dziga Vertov's self-reflexive 'kino-eye', or even Alfred Hitchcock's approach to cinema, many new apps are designed to offer improved ways of looking at ourselves - little stages in which we can perform. Rather than facilitating the voyeurism of previous surveillance technologies (the ability to look at others without being seen ourselves), new tools are not aimed at the other, but at the self. Indeed, "selfie" was named the Oxford Dictionary's International Word of the Year for 2013.

The title of the panel that launched this paper was James Harding's clever 'If Surveillance, Then Performance'. But when considering digital media, we may usefully revise the equation: '[I]f (it is to be) performance, then (you've got to have) surveillance.' That is, both social media-corporate and social media-government rely on, and, therefore, encourage, participation in surveillance culture through continual self-disclosure and self-monitoring. In perhaps the very definition of hegemony, we seem quite willing, even enthusiastic, participants in these pursuits. After all, a performance without an audience isn't much fun. But compare Antonio Gramsci's characterization of cultural hegemony as 'the "spontaneous" consent given by the great masses of the population to the general direction imposed on social life by the dominant fundamental group' with the financial imperatives of a social media company like Facebook (1971:12).

Gramsci sees the compelling mechanism as the 'prestige' projected by the dominant group through its control of the means of production. It is a strikingly similar exercise to Mark Zuckerberg's launch of Facebook first as an exclusive group available only to students at elite universities. First animated by its exclusivity, the company cultivated increasing participation from users who saw the sacrifice of personal information as the cost of participation in a vast online community where 'everybody' else seemed to be. This desire for social inclusion, perhaps our own desire for the 'prestige' of the dominant group controlling means of production, then compels ever more information from its constituents. Consider for a moment the basic security questions from your online bank or any other online security measures (in the United States): mother's maiden name, birth date, pet's name, and so on. Now, think about your standard Facebook profile 'info' page. Where the bank assumes private - even secret - information such as your pet's name or hometown, Facebook encourages you to share this very same information. Much of the vast amounts of data currently being collected comes primarily not from ostensibly 'private' domains (although the tapping of phones, the receipt of phone records and the collection of emails may cross a line for some), but from information that we have already readily provided in the context of social engagement.

Perhaps this trend towards self-revelation is simply, as some claim, representative of the fact that '[i]nformation wants to be free', as Stewart Brand claimed (1987: 202). Sometimes rephrased as 'information wants to be shared', this is a calculatedly non-ideological turn of phrase that displaces agency from both the user and the company who profits from it to the data (Gans 2012). More likely it seems to be the product of McLuhan's observation regarding the tranquilizing effect of surveillance societies. 'It is just when people are all engaged in snooping on themselves and one another,' he wrote, 'that they become anesthetized to the whole process. Tranquilizers and anesthetics, private

and corporate, become the largest business in the world just as the world is attempting to maximize every form of alert' (McLuhan 1970: 12). How else can we explain the lack of collective action in response to the most recent revelations of spying on American citizens? Although polls suggest that most Americans disapprove of the current policies regarding data-mining and governmental surveillance, use of social media has only increased. Data from the Pew Internet and American Life Project demonstrate that 73% of US adults use social networking sites, 42% use multiple sites, and among the largest social networking sites - Facebook, LinkedIn, Pinterest, Twitter, and Instagram – use has increased since 2012 (Duggan and Smith 2013). Previously, it may have seemed creepy to know that someone is following your every movement in space, tracking and recording your movements, carefully noting what stores you visit, what things you buy, what books you're reading and who your friends are. But it's fine when you are the one doing the surveillance. For a while, people have been tossing around George Orwell's 1984 as a model for understanding the current surveillance environment, but really it's a toxic combination of 1984 and Aldous Huxley's Brave New World (1932), where the drug of choice is ingeniously embedded within the mechanisms of surveillance itself.

Such observations are nothing new. In 1948 Norbert Wiener characterized the present time as 'the age of communication and control' (1961:48). Although Wiener wrote well before the emergence of the web and social media, his statement foreshadows not only the development of its fundamental technologies (and as the guy who coined 'cybernetics', he ought to know) but also our immersion within them and indeed our inability to resist them. Social media relies on and therefore perpetuates techniques of mobile self-surveillance, such that we consume our own exploitation as entertainment. If, as McLuhan (and Zuckerberg) suggest, we know ourselves in our data and may not exist outside it - then we must continue to perform in these environments.

Given the emphasis on the current moment, we must continually perform ourselves into being.

So, what modes of resistance are available? In such an environment, are there any options available? Can we recover radical actions within spaces and times so deeply embedded within structures of surveillance?

Some have located possibilities in aurality as radical resistance to image, such as Derek Jarman's Blue, a 78-minute film showing only a blue field with accompanying audio. But even these gestures inevitably get recycled back into social media (you can access and comment on Jarman's Blue with comments on YouTube), which continually subsume all image and audio production into its own ever-expanding network. Scholarship on 'slacktivism' points to the feel-good impulses of online political participation, while noting the limits of 'liking' (although, to be fair, there is also evidence of the efficacy in online social action). Social media may not be an entirely novel mode of power production, but it is an effective one. Although Foucault suggested that any establishment of power simultaneously sets up the potential of resistance (2013:123), the political context animated by self-surveillance and accompanied by the translation of all lived experience (even the involuntary actions of the body itself) into disseminations of performance makes resistant possibilities hard to identify and even harder to practice. One may propose to go 'off the grid', but as drone attacks in remote villages and pervasive satellite surveillance make clear, the grid is ubiquitous and inescapable, and is becoming only more pervasive. To return to Lyons (2013) and his response to the 2013 consumer electronics show, 'We interact with [the Internet] so naturally that there seems to be no user interface at all'.

Other artists and engineers have sought out more practical responses. For example, Japan's Institute of Informatics is currently developing anti-facial recognition glasses in order to avoid face-detection software (Gallagher 2013) and artist Adam Harvey (2013) proposed fashion trends to thwart visual facial recognition surveillance. Few of these, however, address the

real issue, which is not always the identification of individuals as individuals from visual surveillance, but understanding the ways that data is currently processed, how it affects us, and what are its ultimate consequences.

I will conclude with two recent projects that attempt to reveal and disprove many of the central assumptions of mobile communication technology and our techniques of self-surveillance by turning these very practices of mobile self-surveillance to other uses. Julian Oliver's 'Border-Bumping' (2012–13) provides a significant example of this as he illuminates the many subtle performances of mobile self-surveillance and visualizes exactly how these techniques of self-surveillance are distorting notions of time and space.

Oliver is part of a group calling themselves 'critical engineers' and their 'Critical Engineering Manifesto' seeks to remind us that we live in a technologically conditioned environment that serves our interests insofar as we effectively perform in the service of the state. The first tenet in the manifesto is:

1. The Critical Engineer considers any technology depended upon to be both a challenge and a threat. The greater the dependence on a technology the greater the need to study and expose its inner workings, regardless of ownership or legal provision.

(Oliver, Savičić and Vasiliev 2011)

The critical engineers seek to open up not only devices – including a robust critique of 'jail-breaking' Apple devices – but also minds through the development of what they call 'techno-political literacy'.

'Border Bumping' was originally commissioned by the Abandon Normal Devices Festival in the UK, and was further developed and implemented as part of a Technē Institute for Arts and Emerging Technologies artist residency at the University at Buffalo, The State University of New York in 2012. The idea behind the project is to demonstrate the existence of an alternate, but affecting digital context, and superseding even national borders. Here, Oliver seeks to redraw national borders not according to geo-political agreements, but

■ Julian Oliver, 'Transparency Grenade' (2014). Photo Khuong Bismuth 2014



as they are created and re-created through a far more influential network: those of cell phone towers. Described by Oliver as 'a work of dislocative media', Border Bumping effectively demonstrates how mobile self-surveillance - in this case turned from narcissistic uses to critical ones – can be used to reveal the patterns of movement and the complex infrastructure beneath the veneer of our daily performances, both on and offline (Oliver 2014; McCormick 2013). These seemingly minor performances - driving across a border with a mobile phone distort and revise our relation to time and space. As we see from Oliver's revised national border between the United States and Canada reality of our place in space and time - our existence in the 'here' and 'now' - may be radically different within the world of data. Our existence in these moments, themselves a series of documented micro-nows, moves us through space and across borders independently from our actual bodies.

Since the government has outsourced individual surveillance to its citizens, Oliver seeks to put the dangerous and exploitive power of surveillance in our hands as well. His project, 'The Transparency Granade', is a rather ingenious and highly illegal bit of technological resistance. Created in the form of a Soviet F1 Hand Grenade, the Transparency Grenade enables the user to 'deploy' the grenade at any time, and thereby capture and disseminate instantly all of the data circulating in the

immediate vicinity – or, as Oliver (2012) says, 'making the process of leaking information from closed meetings as easy as pulling a pin'. Once detonated, the grenade records all available network traffic and audio in its immediate vicinity and sends it to a designated server where the data is mined, extracted, broadcast, and linked to an online map pointing to the location of detonation. 'Whether trusted employee, civil servant or concerned citizen,' Oliver writes, 'greater openness was never so close at hand' (2012). Now under development for a mobile app, you, too, will soon have the opportunity to 'blow up' all communications around you visible. Using your smartphone as a transparency grenade, you can assume - like generations of revolutionaries before you - the violent power apparatus of the state, however briefly. Of course, like many revolutionary acts, this is highly illegal. Such works confirm the final tenet of the engineers: 'The Critical Engineer considers the exploit to be the most desirable form of exposure' (Oliver 2012). Oliver's emphasis on exposure reveals the double edge of life in an information society: even watching yourself is dangerous.

Such visions were not always dangerous, but they have a long, radical tradition. The title of my paper comes from Gertrude Stein's Four Saints in Three Acts (1927). The phrase is found in two lines in the last few pages of the play: 'When this you see you are all to me,' and more famously as, 'When this you see remember me' (Stein 1934: 45, 47). Perhaps even more interesting are the lines that follow: 'When this you see remember me. They have to be. They have to be. They have to be to see. To see to say. Laterally they may' (47). Stein, of course, knew nothing of digital technologies, although she certainly recognized the potential for writing to radically alter time, and her idiosyncratic style has invited more than one scholar to engage in a kind of interpretive 'code-breaking'. Given her propensity for autobiographies, she was also vulnerable to the temptations of self-promotion and more than once called a narcissist. We can, I think, consider her as well to be a devoted practitioner of the nascent forms of self-surveillance available at the time by selfpublishing journals, collecting images, portraits and photographs of herself, and displaying these to selected groups of friends. Stein and her friends were posting on one another's walls well before Mark Zuckerberg. What Stein thus understood and what she evokes in these final lines is fundamental to understanding contemporary social media as self-surveillance: namely, that being and seeing are inextricably caught up together; that this ontological viewing is a peer-to-peer operation: '[L]aterally, they may,' she writes. The unnamed, unseen 'they' needs to be looking at me so that I can be remembered and, reciprocally, this group known as 'they' is constituted through the act of seeing. If the theatre is the 'seeing place', then of course in our networks of surveillance, all the world's a stage. If surveillance, then performance. This viewing position informs not only surveillance and online media, but much in contemporary theatre and performance, animating works that draw on relational aesthetics, performances of the everyday and our increasingly complicated subject position within and constituted by networks that allow us to look at ourselves and one another. To complete McLuhan's original thought, the more we are documented within digital data centres, the less we exist anywhere else. But this existence is a two-way street. Such networks clearly rely on us for their existence as well. The real question now is, if we cannot exist without providing data and participating in this form of self-surveillance, what kind of command performances will the future hold?

REFERENCES

Brand, Stewart (1987) *The Media Lab: Inventing the future at MIT*, New York, NY: Viking.

Crary, Jonathan (2013) 24/7: Late capitalism and the ends of sleep. New York, NY: Verso.

Duggan, Maeve and Aaron Smith (2013) 'Social media update 2013 | Pew Internet & American Life Project', 30 December, www.pewinternet.org/Reports/2013/Social-Media-Update/Main-Findings.aspx. accessed 15 May 2014.

Dyson, George (2012) Turing's Cathedral: The origins of the digital universe, New York. NY: Random House LLC.

Foucault, Michel (2012) Discipline & Punish: The birth of the prison, New York, NY: Random House LLC.

Foucault, Michel (2013) *Politics, Philosophy, Culture: Interviews and other writings, 1977–1984*, London, New York, NY: Routledge.

Gallagher, Ryan (2013) 'These goofy-looking glasses could make you invisible to facial recognition technology', *Slate*, 18 January, www.slate.com/blogs/future_tense/2013/01/18/isao_echizen_and_seiichi_gohshi_s_privacy_visor_shields_you_from_facial.html. accessed 17 May 2014.

Gans, Joshua (2012) *Information Wants to Be Shared*, Cambridge, MA: Harvard Business Review Press.

Gitelman, Lisa (2006) Always Already New: Media, history and the data of culture, Cambridge, MA: MIT Press.

Gramsci, Antonio (1971) Selections from the Prison Notebooks of Antonio Gramsci, New York, NY: International Publishers Co.

Harvey, Adam (2013) 'Face to anti-face', 14 December, www.nytimes.com/interactive/2013/12/14/opinion/sunday/20121215_ANTIFACE_OPART.html. accessed 17 May 2014

Lyons, Dan (2013) 'What I learned at CES', *ReadWrite*. 14 January, http://readwrite.com/2013/01/14/what-i-learned-at-ces. accessed 17 May 2014.

McCormick, Matt (2013) *Julian Oliver: Border Bumping*, Buffalo, NY: HD. Techne Institute, http://vimeo.com/71356321. accessed 17 May 2014.

McLuhan, Marshall (1970) From Cliché to Archetype. New York, NY: Viking Press.

Narrative – Remember Every Moment (2014) 'Narrative – Remember Every Moment', http://getnarrative.com, accessed 18 February 2013.

Oliver, Julian (2012) 'The transparency grenade', http://transparencygrenade.com. accessed 17 May 2014.

Oliver, Julian (2014) 'Border bumping. In GSM we trust', http://borderbumping.net, accessed 21 February 2014.

Oliver, Julian, Gordan Savičić and Danja Vasiliev (2011) 'The critical engineering manifesto', *Critical Engineering*, October, http://criticalengineering.org. accessed 16 May 2014.

Rayner, Alice (2002) 'E-scapes: Performance in the time of cyberspace', in Elinor Fuchs and Una Chaudhuri (eds), *Land/Scape/Theater*, Ann Arbor, MI: University of Michigan Press, pp. 350–70.

Rollins, Peter C. (1998) *Hollywood as Historian: American film in a cultural context*, Lexington, KY: University Press of Kentucky.

Sontag, Susan (1977) *On Photography*, New York, NY: Macmillan

Stein, Gertrude (1934) Four Saints in Three Acts, New York, NY: Random House; www.royalbooks.com/pages/books/121131/gerturde-stein/four-saints-in-three-acts-first-edition

Wiener, Norbert (1961) *Cybernetics: Or the control and communication in the animal and the machine*, Cambridge, MA: MIT Press.