

International Journal of Media & Cultural Politics
Volume 10 Number 3

© 2014 Intellect Ltd Article. English language. doi: 10.1386/macp.10.3.245_1

STEVE JONES

University of Illinois at Chicago

People, things, memory and human-machine communication

ABSTRACT

As contemporary media of communication increasingly rely on computer mediation there is a concomitantly increasing amount of algorithmic intervention utilizing expressions between users and between users and machines to create, modify or channel communication and interaction with digital agents. This article addresses the consequences of human-machine communication for the field of communication.

In a 2005 essay in *New Media & Society* James W. Carey, in the only written work in which he directly addressed the rise to prominence of the Internet in the 1990s, noted three fatal flaws in the scholarly literature in Internet studies up to that point:

The first flaw was that the literature was not sufficiently historical The second flaw, closely related to the first, is the lack of comparative perspective on the Internet The third flaw in the literature is that it was insufficiently embedded in the vital world of politics, economics, religion and culture. This wider world of power and ambition is decisive for the real consequences of the Internet.

(2005: 446)

KEYWORDS

communication
technology
human-machine
communication
algorithms
cyborgs
artificial intelligence
intelligent agents

I believe we need to continue to take Carey's words about the Internet seriously in what is becoming a post-Internet world, that is, a world in which the 'Internet', capital I, as the network that rose to prominence in the 1990s, recedes in importance while a more complex and complicated Internet, one composed of the numerous other networks, like cellular data, Bluetooth, NFC, etc., that are increasingly often deployed in addition to, in conjunction with, or instead of, communication via Internet protocols, increases in importance. This notion of 'Internet' encompasses more than connections of networks using Internet protocols to communicate words, sounds, and images created by people, for people. It is now better understood as the means by which multiple devices, ubiquitous and often invisible, from near field sensors to mobile devices, from automobiles to desktop computers, from wearable health monitors to thermostats and home lighting and appliances, communicate with and through one another, across and in concert with multiple networks, often automatically and without direct human intervention, incorporating algorithms and forms of artificial intelligence (AI), encircling us in circuits of control, surveillance, recording and processing.

Of particular concern is that as the Internet recedes so too will the historical and comparative perspectives we bring to bear in studies and critiques of new forms network-mediated communication. The greater concern, however, is that as new forms of network-mediated communication are embedded in everyday life, less visibly over time, that more difficult yet more necessary will be the critical ability to disentangle their consequences from the 'wider world of power and ambition' Carey reckons to be decisive.

The most visible manifestation of what is coming to be a post-Internet world I believe is in the realm of the digitization of memory, expression and action, specifically in the realm of the mundane. Technology has long been used to preserve memory, despite a long-standing human fear (the expression of which is typically traced back to Plato) that, by externalizing memory, it will cause us to become forgetful (Hamilton and Cairns 1963; Ong 1982). Novelist Milan Kundera zeroed in on the importance of memory when he wrote in *The Book of Laughter and Forgetting* that, 'the struggle of man against power is the struggle of memory against forgetting' (1981: 3). But the equation has now changed to the degree that the struggle of man against power may be in the struggle of forgetting against memory. How much of what we say and do will henceforth not be forgotten, and with what consequences? In an essay I wrote in 1994 on the notion of an information revolution I grappled with the degree to which digitization had altered history, had changed technology's function as recorder of sound, sight, word. It was not only recorder but also recoder, a means of very easily reordering and recoding memory and history, a means, 'mediated via communications technology, with which to rewrite the past, and we are slowly, as a society, beginning to become conversant in this milieu of malleability' (Jones 1994: 56). The observations I made and used in that essay were based on developments in video technology that permitted moving images to be digitized and edited just as sound had been digitized and sampled in the 1980s. That technology was asynchronous and relied on recording, but what if it were synchronous, transpiring in real time, or near to it?

It is my belief that we have entered a new phase in the technological mediation of the human relationship with memory, partly due to the abundance of inexpensive and networked digital storage and the abundance of ubiquitous recording devices and partly due to the speed of digital processing and network technologies. It is a phase in which memory is not only recorded

and recoded but is also repurposed for use by machines, in near real time, most often at this time for commercial use, and is, for all intents and purposes, grist for the mill of human-computer interaction (HCI).

Another way to put it is that there is a new impingement of the machine into routine interaction in a way that has greatly expanded the memories we make and that are made for us, including ones we have not in the past sought to remember (or perhaps even considered remembering). We create digital texts, tapped in via keyboards and screens, images and sounds recorded and uploaded privately and publicly. Putting our likes and friends into preset categories that are database-driven and ready, communicating in 140-character units, exchanging memes, sharing and storing photos and videos, externalizes memory in new and unpredictable ways that not only alter our communication and thinking but also provide a medium for the machine and its analysis of, and subsequent interaction with, us. These expressions may be collected and accessed from any variety of sources (a narrative lifelogging camera, Facebook, Google, our hard drives, Flickr, e-mails, etc.), then collected, collated, categorized, interpreted, always ready for access and retrieval. In addition, our actions such as movement and location are noted by mobile devices we carry, or by devices that communicate with them (such as phone company transceivers or wi-fi hot spots) or by sensors (such as NFC or iBeacon technologies). Wearable technologies measure temperature, heart rate, sleep patterns, and routinely record them. These traces of human-machine communication (HMC) are commonplace, often invisible (if not concealed) and when visible as seemingly natural as human-human communication. Algorithms and computers make use of such recordings, essentially memories of us, to further processes of interaction, communication, for a variety of purposes, ranging from the informational to commercial, from entertainment to education.

My attention was drawn to these matters of the reconfiguration of the relationship between memory, humans and the machine for two reasons. The first came about through consideration of issues related to online or virtual memorialization, and the second came from an increasing unease I have felt about the state of affairs in communication scholarship regarding HMC.

The first issue to catch my attention, online or virtual memorialization, is one I addressed in an essay for *Omega – Journal of Death and Dying* (2004), as the phenomenon of Facebook memorials started to become visible and it was clear that we were entering a new era of online grieving. Grieving is a very human, personal, activity, one with both private and public dimensions, and one tightly wrapped up with matters of identity, for as we grieve and remember others we also remember our selves. In work with Paige Gibson on an article about online Holocaust memorialization (Gibson and Jones), examining Holocaust remembrance by way of a video titled 'Dancing Auschwitz', we argued that, 'remembrance online becomes the start of identity building rather than a blockade to the individual's self-determination' (2012: 128). Viewers' expressions of concern about Holocaust remembrance ranged from whether remembrance would be a global, mediated, experience, not only shared by those who had a direct connection to it, but also a participatory experience in which no direct connection to the Holocaust were necessary, or a unique experience rooted in the self, and, in turn, rooted in one's culture and perhaps disconnected from the Holocaust. In other words, in an era of global social networks and file sharing, can memorialization and grieving be at once rooted, deeply personal and widely shared, reinterpreted, remediated, participatory?

One reason I was particularly struck by the ‘Dancing Auschwitz’ phenomenon was that I had thought about these issues in relation to pop stars in the book *Afterlife as Afterimage* (Jones and Jensen 2005) but had not then considered it in a sufficiently wide frame that encompassed cultural, participatory, events, and had not considered struggles over posthumous identity and memory as potentially global, network-mediated phenomena, as social network sites were then only beginning to emerge. *Afterlife as Afterimage* was inspired by a conversation with Bela Lugosi, Jr, son of the actor, about celebrity, posthumous fame, and the legal rights celebrities’ estates may have not only to recorded works but also to the likeness and future use of the deceased’s image and voice. Those conversations were vividly brought back to mind, causing me to think again about matters of participation, ownership and identity, when, at the 2012 Coachella Valley Music and Arts Annual Festival, rapper Tupac Shakur appeared onstage, shouted ‘What’s up Coachella?!’ and performed two of his classic singles (Kaufman 2012).

In short, the performance has been most often referred to as a ‘hologram’ but it relied on an old Victorian-era theatre illusion known as Pepper’s Ghost involving projection to an angled glass plate and precise, proper lighting. A compelling stage trick, for a time it seemed as if the national obsession with zombies in popular culture had infected the music industry. Numerous other deceased performers, like Freddie Mercury, were to be resurrected onstage. One news story reported that, ‘Dr. Dre and Snoop Dogg were considering taking Shakur with them on tour’, (Ngak 2012) and one wonders why they did not. It was not a new occurrence that singers would duet with the dead, not only via audio media, but also via video, as when Celine Dion and Elvis shared the *American Idol* (2002) stage, or Alicia Keys and Frank Sinatra ‘performed’ at the 2008 Grammy Awards. Actors have been digitally recreated, living and dead, to read their lines (e.g., Oliver Reed in *Gladiator* [Scott, 2002]) and in other cases ‘inserted’ into historical footage (e.g., *Forrest Gump* [Zemeckis, 1994]) (Walker 2014). And, of course, one must acknowledge the advertising world’s efforts in regard to the appropriation of dead celebrities. However, the Tupac appearance was a significant shift in the technology of reappropriation. As Thomas Conner wrote:

The appearance of 2.0Pac at Coachella was the first time such mergers of the living and dead took place in live performance in a visual, aural and interactive way, that is, not simply as an overlay of live and recorded, of simulcast synchronicity, but as an interaction between live performer and avatar being manipulated offstage in real time. This was, in other words, less like Celine and Elvis, and more like virtual pop star Hatsune Miku.

(2013)

There are many interesting things to discuss in relation to 2.0Pac, as Conner noted, and many published media responses to the 2.0Pac performances invoked postmodernism, frequent mentions of simulacra, Jean Baudrillard and Slavoj Žižek. While most seemed to eventually become critical of the commingling of technology and art, all seemed to take for granted the technological mediatization of the dead. Perhaps the efforts to exert control over posthumous celebrity have led to this. As Conner noted, ‘if eventually a viable artificial intelligence is achieved, then creative decision of performance may one day revert back to the performer as autonomous digital virtual star ... (with

considerable use of remediating metaphors in the transition from old media to new' (2013: 183). Like other such combinations of the living and dead, each time the boundaries in between are made thinner, if not broken, we can expect we will be treated to more such, as well as to further efforts to push against, if not eliminate, the boundaries. Modern media have long made such promises (Sconce 2000).

What made the 2.0Pac performance particularly interesting to me was that it recalled my experience of the first time I saw a televised report on the Science Channel (Popular Science 2009) of a research project in which I was involved, 'Project Lifelike', a National Science Foundation funded collaboration between the University of Illinois at Chicago Electronic Visualization Laboratory and the University of Central Florida Intelligent Systems Laboratory (Gonzalez et al. 2013). The essence of the project involved creating a lifelike 3D avatar with whom system users could interact, as

a small but definitive step in our goal of developing a virtual human that can pass the enhanced Turing test – one that can fool a human into thinking he or she is speaking with the actual person via computer-based communication rather than a virtual representation of the person.

(Gonzalez et al. 2013: 412)

The Science Channel programme, titled 'Popular Science's "Future of immortality"' closed with a segment featuring a woman opening a 'virtual memorial card', a kind of holographic screen, while the narrator says, 'Today, when loved ones die, they leave us with only memories. But in the future, their avatars will be so lifelike they'll interact with us long after their bodies are gone' (2009).

The startling thing was not so much that the producers of the segment took the research in a different direction than what we had imagined but that we could probably create technology that they imagined, and that we would only need more of what we have now, that is, more storage, faster processing, better graphics, and so on, and not anything particularly novel. This is not to say that someone's consciousness could be 'downloaded' to a machine, but rather that one's likeness, in image, word, sound, action, could be recreated. Many people, whether they know it or not, already have engaged in the process of providing a means of algorithmic deduction of their speech, behaviours, mannerisms, images, etc., by tweeting, posting, uploading, purchasing online, or simply using and having powered on networked devices (whether wired or wireless) and otherwise externalizing, in digital form, their actions and utterances. As Thomas Conner wrote in the context of Hatsune Miku's fans,

the input of performative data ... is continuing even as we rush to output the results back into the physical world. Cyberspace and its digital tools are, in effect, acting as a magic mirror through which we are reflecting our current selves ... like the thousands of humans who utilize wearable computing devices and data-crunching apps to record and archive masses of self-monitored, self-sensing data about their individual lives.

(Conner 2013: 185)

When embedded in social networks it is not difficult to parse out, in addition to social relations, the likes and dislikes, turns of phrase and speech, indeed entire conversations and histories of individuals.

Our personal histories thus serve as a massive multimedia database, available to us but also to those who host the servers, those who pay those who host the servers, and, ultimately, to unknown others. The notion of a 'noosphere' as espoused by Teilhard de Chardin (1959) may actually have less to do with encircling the globe from above with satellites and communication, thereby creating McLuhan's 'global village', and more to do with encircling ourselves with cameras, microphones, keyboards, sensors, Arduinos, networks of devices that are always at attention, recording, storing, communicating (with us and each other), telling us about ourselves, our environment, and about others here on Earth.

It is particularly noteworthy that at the same time that we seem to gain control by participating in algorithmic analysis of our words and actions, as when we get recommendations from online commerce sites, ads delivered based on our interests as expressed through clicking links and viewing pages, or insights from health data that have been collected, we simultaneously cede control over the very data that enables this illusion of control. As Andrejevic noted, in what he terms the formation of a 'digital enclosure', there are 'conveniences attendant upon mobile computing and associated forms of networked interactivity. Even forms of target marketing – such as those practiced by Amazon.com – can be useful ... (but it) is critically important to consider precisely what the cost of these conveniences might end up being' (2007: 311). Carey's 'wider world of power and ambition' is subtly embedded in our interaction with the machine.

Indeed, Andrejevic's comments are more critical now than they were in 2007 due to rapid development of wearable technologies and the Internet of Things, as much a set of technologies as a

view that cities and the world itself will be overlaid with sensing and actuation ... embedded in 'things' creating what is referred to as a *smart world* ... (whose) steady increasing density of sensing and the sophistication of the associated processing will make for a significant *qualitative change* in how we work and live.

(Stankovic 2014: 3, original emphasis.)

The Internet of Things is a continuation of the build-out of the infrastructure Andrejevic identified and critiqued and realizes what Gehl described as noo-power and noopolitics:

noo-power and the Society of Control center on the modulation of the possibilities of noopolitics, the insertion of thought before thought. They require the induction, seduction, enhancement or constraint of the possibilities of thought itself, seeking to eliminate radical differences of opinion – differences that could make a difference – with repetitious thoughts: intensive loops and repeated messages that subjects incorporate into their own perceptions.

(Gehl 2013)

The Internet of Things, by 'learning' behaviours and operating as a platform for 'smart' technologies, promises to eliminate mundane human thought, to learn what users will want or need before they themselves know it, thereby creating the perception that the world, at least the one immediately surrounding the user, is under (the user's) control. This is the promise of the

personalization of 'Big Data', the ethos of the 'Quantified Self', the revelation of our own patterns of action and thought to ourselves. The importance of the Internet of Things is not simply that it creates additional opportunities for surveillance, precisely targeted messaging for political, commercial or other purposes, hacking or disruption, but that it furthers the impingement of technology, particularly algorithmic technology, on increasingly mundane aspects of human activity. These lend themselves to control and automation technologies precisely because we do not notice them, or we wish to be relieved of responsibility for that which they automate and control, or because they offer some form of remuneration for our participation (e.g., recommendations, discounts, discovery), and because they hew to modernist narratives of control. Like phones, or the promised 'self-driving' car, these devices trade on the idea that they are 'smart', implying they are ultimately smarter than humans because they will reveal us to us. But by mediating our relationship with the things they control and with our self they further remove us from our environment and ultimately from one another. They also abstract our self-knowledge in potentially perilous ways, urging us to think of, and act on, our behaviours and bodies as quantifiable and categorizable.

Another way, then, to understand the Internet of Things is as a form of machinic subjectivity, as technology that 'hails' and interpellates concrete individuals as concrete subjects (Althusser 1972). It is another technologically advanced means of configuring 'the imaginary relationship of individuals to their real conditions of existence' (162) in and through a technological apparatus that responds to the individual at dynamic and fine-grained levels of interaction and response. While Gauntlett (2002) and others have clearly argued that mass media texts interpellate media consumers within certain assumptions about the audience, we are now interpellated in processes like 'production', in which 'consumption is increasingly treated as productive, rather than simply the end of the circuit of production' (Gehl 2013). The information, the data, that we share about what we do, when we do it, where, how and with whom, is not just the currency of twenty-first-century capitalism but also the fuel that powers the algorithmic engines that propel it.

I was reminded of the importance of this when I came across notes I took at a 2002 presentation given by Tom DeFanti, co-founder of the Electronic Visualization Laboratory at the University of Illinois at Chicago, about the 'OptIPuter' project (DeFanti et al. 2003). During that presentation it was noted that optical networks were becoming faster than computers; that is, the speed at which data can travel across an optical network is faster than the speed at which it can travel between a hard drive and CPU within a computer. Essentially the network had become faster than the computer, making the computer, as a node, far less important than the fact of the network itself and of the circulation of data through it. Of course, the networks one uses in daily interaction are not optical and not nearly that fast, but with the advent of Bluetooth and increases in wi-fi speeds the sharing of computing resources among devices is increasing. Mundane computing will increasingly resemble the type described by DeFanti as networking technologies continue to improve speed and bandwidth, rather like microprocessors improved according to Moore's Law. Even now wearable technologies like the Apple Watch rely on constant communication with the Apple iPhone for processing power. The constant flow and circulation of information about individuals is not only what makes the Internet of Things technologically possible but also what makes it the immanent, collective, dynamic extension and expression of the

networked interpellated subject. Sarigol et al. noted that their research on disclosure in online social networks (OSN),

poses a simple conclusion: not having an account in an OSN does not guarantee a higher level of privacy, as long as one has enough friends who already are in the OSN. In an interlinked community, an individual's privacy is a complex property, where it is in constant mutual relationship with the systemic properties and behavioral patterns of the community at large.

(Sarigol et al. 2014: 103)

We are all embedded and enmeshed in digital networks of people and things, whether we have an account or not.

It is important therefore to remember what Stanyek and Piekut point out when concluding their insightful analysis of posthumous duets such as the one between Natalie Cole and Nat 'King' Cole, echoing Donna Haraway, that:

Worlds of objects, humans, and non-human life do something other than simply 'inter'-act and, indeed a conception that posits mutually exclusive, ethically misaligned worlds, self-sufficient and ontologically stable, is not what we're after. These 'worlds' do not pre-exist their enrollment in contingent assemblages; it is in and through reciprocal effectivity – collaboration – that they take shape The term 'intermundane' might better index all relationships between entities that are non-identical, but whose identities seem to be mutually instrumental. In late capitalism, deadness has emerged as a decisive patterning of intermundanity based upon ever-replenishable value, ever-resurrectable labor, ever-revertible production processes.

(Haraway 2010: 35)

Present day technologies make cyborgs of the dead and the living. When Haraway's 'A manifesto for cyborgs' (1991) and Hayles' *How We Became Posthuman* (1999) were published it seemed that their robust and well-reasoned critiques of technological discourses of dualism between mind and body, human and machine, created opportunities for new configurations and considerations of identity, consciousness, embodiment and technologized subjectivity. Hayles was inspired to write her book after reading Hans Moravec's *Mind Children: The Future of Robot and Human Intelligence* (1990) in which Moravec described the eventual transfer of human consciousness into a computer. Since that time researchers in the fields of HCI, virtual reality (VR), AI and human-robot interaction (HRI) have presented interesting work on the idea of embodied conversational agents (as a starting point and neither exhaustive nor comprehensive: Cassell 2000; Cassell et al. 2000; Nass et al. 2000; Fong et al. 2003; Bickmore and Cassell 2004; Vardoulakis et al. 2012). While some research has been done in the field of HCI it is, to paint in too-broad strokes, primarily occupied with design and development of technology, and not sufficiently concerned with its consequences, its practical and philosophical ethics. Few scholars in communication, with the notable exception of David Gunkel (2012a) who has written extensively about the philosophical and ethical implications of machine intelligence, are filling the gap, though considerable research is under way in other fields on the design, implications and consequences of a posthuman world, ranging from empirical

work in Human Augmentics (Kenyon and Leigh 2011) to theoretical interventions (Ferrando 2013).

But the fullest illustration of this technically interpellated subject turns out not to be a subject at all, but a phone, or a watch, or a bracelet, or 'a jacket that gives you a little hug when someone likes your Facebook post' (Rose 2014: 50), devices that rely on a network the feedback loop within which they operate, ones that resemble objects, designs or media with which we are quite familiar. It is these that make us the cyborgs Haraway described, not in fiction but in reality. Ours is not a separation of mind and body but an extraction of them, their digitization, the human and machine coexisting as friends (or 'friends', if you would prefer the OSN version). I believe this is evident in our new forms of HMC. An enormous amount of contemporary communication is not between and among humans, but between and among humans and machines. (I am unable, for lack of space, to sufficiently consider here the importance of communication between and among machines, though that is a significant and interesting point of departure for future research and theory.) I include in this category everything from interaction with algorithms via search engines, interfaces, games, Siri and her clan of automated response systems (including automated telephone customer service agents). Although I am not aware of empirical research that has assessed the ratio, anecdotally it seems that the amount of HMC, the amount of time spent communicating with our devices, is growing, and may be nearing if not overtaking the amount of time spent communicating with people (including time spent communicating with others via our devices).

The importance of HMC is in large part due to its insertion of the machine as itself an interpellated subject, always-already situated within the learned behaviours of an individual user and also the aggregate bloc of users whose communication has been mined and algorithmically processed to present a seemingly autonomous and coherent interlocutor, one at the user's beck and call, ready to provide information, control and to be controlled.

Overall, however, scholars in communication have little attended to the consequences of HMC, though the implications are manifold. The main point of concern should be with how we relate to machines that may be, or may at least appear to be, intelligent, conversational, agents, or, to put it colloquially, appear lifelike. My interests here are not in what Clark (2003) has identified as 'thinking and reasoning systems whose minds and selves are spread across biological brain and non-biological circuitry' (2003: 3) but in the interaction between humans and communicative machines. How might we study and theorize HMC? Most of our theories and methods arose in a world in which humans communicated, created, read, viewed, and listened, to and with one another. Meaning was made in interaction and experience face to face and with human creations mediated, rendered and recorded in text, audio and video. But present day technology gives us at least a glimpse that we are on the verge of interaction and experience with agents, ones that may be populated with existing texts, sounds, images, from which memories can be called upon by a machine, algorithmically, interactively, sometimes stored from prior interactions with us or from the collective communication of other users, or in other cases, agents that originate communication without reference to pre-existing texts.

The consequences for the study of communication of the new technical apparatus that blends relational agents, social technologies and the Internet of Things are of grave importance. For example, the impact of algorithms and manipulation on social interaction must be addressed. Honan (2014) found Facebook's manipulation of his news feed based on his 'likes' to have

an interesting effect on his relationships. The takeaway for communication scholars should be that Facebook cannot be studied as a mere channel or conduit or even a medium in and through which messages are relayed back and forth between and among people. Facebook is a much more active participant in the communication process than can be gleaned from textual data, for Facebook itself presents, organizes, curates and delivers information, and studies of communication on Facebook ought to consider its context, its totality. Similarly, studies of posts on Twitter ought to account for the presence of social agents, or 'social bots', that can post and seem human.

It is equally important for communication scholars to acknowledge and study the role of devices and agents in communication processes and social relations. Studies of technological presence and telepresence have taken a functional approach, essentially attempting to measure attributes that lead to greater or lesser 'immersion' or 'engagement', often with promising and interesting results. For instance, Skalski and Tamborini noted that, 'interactivity, induced through an interactive source, *can* create greater perceptions of social presence governing information processing and resultant attitude and behavioral intention' (2007: 406, original emphasis). The persuasive dimensions of these phenomena have been best captured by B. J. Fogg's notion of 'captology', the use of computers as persuasive technologies (2002) and form the basis for a great deal of research on the quantified self (Choe et al. 2014).

However, to date surprisingly little work has engaged notions of anthropomorphism itself as a way to interrogate the relationships we have with our machines and devices and the consequences those relationships have on social relations generally. The sometimes maligned, often forgotten, and usually greeted-with-a-chuckle Tamagotchi deserves more than just a little love, and ought to have led to a more thorough exploration of how and why we forge relationships with devices that seem, or that we at least seem to consider, autonomous and sentient. That we form connections to electronic devices ought to be obvious, but that we are connecting with them in ways that, for instance, Sherry Turkle (1984) has noted in her book *The Second Self*, seems to be of less interest to scholars in communication than I would hope and expect. Avatars and agents, our use of them, our interactions and relationships with them, and the affective dimensions of those interactions and relationships, ought to be a focus of study, as noted by David Gunkel, who wishes to:

explicitly (recognize) and (endeavor) to deal with the fact that the majority of online communication is not human-to-human (HSH) exchanges but, as Norbert Wiener had already predicted in 1950, interactions between humans and machines and machines and machines.

(Gunkel 2012b: 1)

I would only add that it is now most likely the case that communication generally, not only online, is more often than not between humans and machines (typically mobile devices) and machines and machines. The computer in 'computer-mediated communication' is not merely a mediator but is also an interlocutor, companion, consultant and advisor.

One lens through which to contemplate human-machine communication is the notion of 'recognition' as it was expressed eloquently by Paul Ricoeur in *The Course of Recognition* (2005). In its three chapters Ricoeur examines three concepts: recognition as identification, recognizing oneself and mutual

recognition. It is the latter that particularly provides an interesting and useful framework for probing human and machine capacities and demands for recognition, for 'reciprocity and mutuality', in Ricoeur's terms, that underlies, underpins and ultimately transcends identity and the self. Ricoeur's emphasis on recognition as identification seems most germane to probing human-machine communication, as it would seem useful as a means to draw a line between human and machine, but it is his further exploration in the second chapter of agency and capacity in relation to mutual recognition that provokes one's thinking about humans and machines in interaction and communication. Perhaps the most interesting question in regard to humans and machines in general arises from the third chapter: when, and in what contexts and circumstances, does the demand for recognition arise? Even in these early moments of encountering and struggling with new forms of engagement with machines, algorithms, data, Ricoeur's words could well serve as the foundation on which we build an understanding of human-machine communication as a category of meaningful interaction not only benefiting or in service of the machine and its operators but one, in Ricoeur's terms, at 'a just distance ... maintained at the heart of mutuality, a just distance that integrates respect into intimacy' (Ricoeur 2005: 263). It is the lack of such mutuality that I believe justly causes our suspicion and wariness in contemporary interactions with algorithms and agents, as we rightly sense a lack of respect and desire to capitalize on intimacy.

Carey closed his 2005 *New Media & Society* essay by repeating an intriguing and important idea with which he was grappling toward the end of his life:

Every fundamental change in technology – whether the invention of written literacy or of printing or the telegraph or whatever – every fundamental change in the system of production, dissemination and preservation of culture simultaneously borders and deborders the world. It was a widespread notion in the 1990s that Internet technology was a force in globalization, creating borderless worlds and borderless communities, borderless organizations and borderless politics. There is truth in that generalization. But what is equally true, is that as one set of borders, one set of social structures is taken down, another set of borders is erected.

(Carey 2005: 453)

Are we, like the people Carey makes an example of immediately after the comment I quoted, who engaged in 'a secession of the successful into isolated and gated communities ... partly as the response of people who no longer believe in the social contract' (2005: 454), also engaging in a restructuring and re-bordering of interaction with the world around us, with its electronic, digital objects and its people, as we increasingly communicate, willingly or unknowingly, with machines? I believe that we are, and that only through careful, sustained, critical and empirical interrogation of these extraordinarily complicated phenomena will we sufficiently embed our studies of the new media of communication in that 'wider world of power and ambition' to which Carey (2005: 446) called us to attend. That attention, in turn, ought to focus us on whether, how and to what extent we not only define machines but are ourselves defined by machines (Kittler 2006: 39), a crucial question for future theory and research. We must therefore ask what the consequences will be for communication in general, and for the study of communication in particular, as we continue apace our flirtations with machine communication.

REFERENCES

- Althusser, L. (1972), *Lenin and Philosophy and other Essays*, New York: Monthly Review Press.
- American Idol* (2002, USA, Fox Television).
- Andrejevic, M. (2007), 'Surveillance in the digital enclosure', *The Communication Review*, 10: 4, pp. 295–317.
- Bickmore, T. and Cassell, J. (2004), 'Social dialogue with embodied conversational agents', in J. van Kuppevelt, L. Dybkjaer and N. Bernsen (eds), *Natural, Intelligent and Effective Interaction with Multimodal Dialogue Systems*, New York: Kluwer Academic, pp. 1–27.
- Carey, J. W. (2005), 'Historical pragmatism and the Internet', *New Media & Society*, 7: 4, pp. 443–55.
- Cassell, J. (2000), 'Nudge nudge wink wink: Elements of face-to-face conversation for embodied conversation agents', in J. Cassell, J. Sullivan, S. Prevost and E. Churchill (eds), *Embodied Conversational Agents*, Cambridge, MA: MIT Press, pp. 1–27.
- Cassell, J., Bickmore, T., Campbell, L., Vilhjalmsson, H. and Yan, H. (2000), 'Human conversation as a system framework: Designing embodied conversational agents', in J. Cassell, J. Sullivan, S. Prevost and E. Churchill (eds), *Embodied Conversational Agents*, Cambridge, MA: MIT Press, pp. 29–63.
- Choe, E. K., Lee, N. B., Lee, B., Pratt, W. and Kientz, J. A. (2014), 'Understanding quantified-selfers' practices in collecting and exploring personal data', *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2014)*, Toronto, Canada, 26 April–1 May.
- Clark, A. (2003), *Natural-Born Cyborgs: Minds, Technologies and the Future of Human Intelligence*, Oxford: Oxford University Press.
- Conner, T. (2013), 'Rei Toei lives!: Hatsune Miku and the design of the virtual pop star', M.A. thesis, Chicago: University of Illinois at Chicago.
- de Chardin, T. (1959), *The Phenomenon of Man*, New York: Harper & Row.
- DeFanti, T. A., Leigh, J., Brown, M. D., Sandin, D. J., Yu, O., Zhang, C., Singh, R., He, E., Alimohideen, J., Krishnaprasad, N. K., Grossman, R., Mazzucco, M., Smarr, L., Ellisman, M., Papadopoulos, P., Chien, A. and Orcutt, J. (2003), 'Teleimmersion and visualization with the OptIPuteron in S. Tach (ed.), *Proceedings of the 12th International Conference on Artificial Reality and Telexistence (ICAT 2002)*, Tokyo: Ohmsha/IOS Press, pp. 25–71.
- Ferrando, F. (2013), 'Posthumanism, transhumanism, antihumanism, meta-humanism, and new materialisms: Differences and relations', *Existenz*, 8: 2, pp. 26–32.
- Fogg, B. J. (2002), *Persuasive Technology: Using Computers To Change What We Think And Do*, San Francisco: Morgan Kaufman.
- Fong, T., Nourbakhsh, I. & Dautenhahn, K. (2003), 'A Survey of Socially Interactive Robots', *Robotics and Autonomous Systems*, 42: 3–4, pp. 143–166.
- Gauntlett, D. (2002), *Media, Gender and Identity*, London: Routledge.
- Gehl, R. W. (2013), 'What's on your mind? Social media monopolies and noopower', *First Monday*, 18: 3, <http://journals.uic.edu/ojs/index.php/fm/article/view/4618/3421>. Accessed 3 September 2014.
- Gibson, P. and Jones, S. (2012), '"Remediation and Remembrance" "Dancing Auschwitz"', collective memory and new media', *ESSACHESS-Journal for Communication Studies*, 5: 2, <http://www.essachess.com/index.php/jcs/article/view/171>. Accessed 3 September 2014.

- Gonzalez, A. J., Leigh, J., DeMara, R. F., Johnson, A., Jones, S., Lee, S., Hung, V., Renambot, L., Leon-Barth, C., Brown, M., Elvir, M., Hollister, J. and Koboski, S. (2013), 'Passing an enhanced turing test – interacting with life-like computer representations of specific individuals', *Journal of Intelligent Systems*, 22: 4, pp. 365–415.
- Gunkel, D. (2012a), *The Machine Question: Critical Perspectives on AI, Robots and Ethics*, Cambridge, MA: MIT Press.
- Gunkel, D. (2012b), 'Communication and Artificial Intelligence: Opportunities and Challenges for the 21st Century', *communication +1*, 1: 1, pp. 1–25.
- Hamilton, E. and Cairns, H. (1963), *The Collected Dialogues of Plato*, New York: Pantheon.
- Haraway, D. (1991), *Simians, Cyborgs and Women: The Reinvention of Nature*, New York: Routledge.
- Hayles, N. K. (1999), *How We Became Posthuman*, Chicago: University of Chicago Press.
- Honan, M. (2014), 'I Liked Everything I Saw on Facebook for Two Days. Here's What It did to Me', *Wired*, <http://www.wired.com/2014/08/i-liked-everything-i-saw-on-facebook-for-two-days-heres-what-it-did-to-me/>. Accessed 18 December 2014.
- Jones, S. (1994), 'Hyper-punk: Cyberpunk and information technology', *Journal of Popular Culture*, 28: 2, pp. 81–92.
- (2004), '404 not found: The Internet and the afterlife', *Omega: Journal of Death and Dying*, 49: 1, pp. 83–88.
- Jones, S. and Jensen, J. (2005), *Afterlife as Afterimage: Understanding Posthumous Fame*, New York: Peter Lang Publishing.
- Kaufman, G. (2012), 'Exclusive: Tupac Coachella hologram source explains how rapper resurrected', *MTV News*, 16 April, <http://www.mtv.com/news/1683173/tupac-hologram-coachella/>. Accessed 13 August 2014.
- Kenyon, R. V. and Leigh, J. (2011), 'Human Augmentics: Augmenting human evolution', *IEEE Engineering Medicine Biology Conference 2011*, Boston, MA, 30 August – 3 September.
- Kittler, F. (2006), 'Thinking colours and/or machines', *Theory, Culture & Society*, 23: 7–8, pp. 39–50.
- Kundera, M. (1981), *The Book of Laughter and Forgetting*, New York: Penguin Books.
- Moravec, H. (1990), *Mind Children: The Future of Robot and Human Intelligence*, Cambridge, MA: Harvard University Press.
- Nass, C., Isbister K. and Lee, E. (2000), 'Truth is beauty: Researching embodied conversational agents', in J. Cassell, J. Sullivan, S. Prevost and E. Churchill (eds), *Embodied Conversational Agents*, Cambridge, MA: MIT Press, pp. 374–402.
- Ngak, C. (2012), 'Tupac Coachella hologram: Behind the technology', *CBS News*, 9 November, <http://www.cbsnews.com/news/tupac-coachella-hologram-behind-the-technology/>. Accessed 13 August 2014.
- Ong, W. (1982), *Orality and Literacy: The Technologizing of the Word*, New York: Routledge.
- Popular Science (2009), 'The future of immortality', 12 October, <http://www.sciencechannel.com/tv-shows/pop-scis-future-of/videos/popscis-future-of-immortal-avatars.htm>. Accessed 13 August 2014.
- Reeves, B. and Nass, C. (1996), *The Media Equation: How People Treat Computers, Television and New Media Like Real People and Places*, Cambridge: Cambridge University Press.

- Ricouer, P. (2005), *The Course of Recognition*, trans. David Pellauer, Cambridge, MA: Harvard University Press.
- Rose, D. (2014), *Enchanted Objects: Design, Human Desire, and the Internet of Things*, New York: Scribner.
- Sarigol, E., Garcia D. and Schweitzer, F. (2014), 'Online privacy as a collective phenomenon', in A. Sala, A. Goel and K. Gummadi (eds), *COSN '14 Proceedings of the Second Edition of the ACM Conference on Online Social Networks*, New York: ACM, pp. 95–106.
- Sconce, J. (2000), *Haunted Media: Electronic Presence from Telegraphy to Television*, Durham, NC: Duke University Press.
- Scott, R. (2002), *Gladiator*, Universal City, California: Dreamworks.
- Skalski, P. and Tamborini, R. (2007), 'The role of social presence in interactive agent-based persuasion', *Media Psychology*, 10: 3, pp. 385–413.
- Stankovic, J. A. (2014), 'Research directions for the Internet of things', *IEEE Internet of Things Journal*, 1: 1, pp. 3–9.
- Stanyek, J. and Piekut, B. (2010), 'Deadness: Technologies of the intermundane', *TDR: The Drama Review*, 54: 1, pp. 14–38.
- Turkle, S. (1984), *The Second Self*, New York: Simon & Schuster.
- Vardoulakis, L. P., Ring, L., Barry, B., Sidner, C. and Bickmore, T. (2012), 'Designing relations agents as long term social companions for older adults', in Y. Nakano, M. Neff, A. Paiva and M. Walker (eds), *Intelligent Virtual Agents*, Berlin: Springer, pp. 289–302.
- Walker, D. (2014), 'Philip Seymour Hoffman, Heath Ledger, Oliver Reed and Brandon Lee: How unfinished films manage after a star's death', *Mirror*, 6 February, <http://www.mirror.co.uk/tv/tv-news/philip-seymour-hoffman-heath-ledger-3118265>. Accessed 13 August 2014.
- Zemeckis, R. (1994), *Forrest Gump*, Hollywood, California: Paramount Pictures.

SUGGESTED CITATION

- Jones, S. (2014), 'People, things, memory and human-machine communication', *International Journal of Media and Cultural Politics* 10: 3, pp. 245–258, doi: 10.1386/macp.10.3.245_1

CONTRIBUTOR DETAILS

Steve Jones is UIC Distinguished Professor of Communication, Research Associate in the Electronic Visualization Laboratory and Adjunct Professor of Computer Science at the University of Illinois at Chicago, and Adjunct Research Professor in the Institute of Communications Research at the University of Illinois at Urbana-Champaign.

Contact: Department of Communication, University of Illinois at Chicago, 1007 W. Harrison (m/c 132), Chicago, IL 60607, USA.
E-mail: sjones@uic.edu

Steve Jones has asserted his right under the Copyright, Designs and Patents Act, 1988, to be identified as the author of this work in the format that was submitted to Intellect Ltd.

Copyright of International Journal of Media & Cultural Politics is the property of Intellect Ltd. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.