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Computers and/as humans

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Abstract : *This paper asks will humans be overtaken by the computers they created and will our technophilia lead to artificial intelligence displacing us? In this paper, I also enter into and extend scholarly discussions about the creative possibilities for qualitative narrative research techniques through making this scholarly story about the non-humanising international reach of computer technologies. It is increasingly obvious that we have a love affair with new digital technology. Walking along the street, crossing the road, riding the bike or out to dinner: even in these unlikely places we see and hear people on the i-phones or using their i-pads. A question, suggestion or discussion point is quickly googled for reference. Such research is every-day: we are linked to the computer. Is it possible that one day we will become the computer or be absorbed by it? Certainly such performance-enhancement goes everywhere with those of us who own computers and i-pods and iphones/pads with easy access to the WWW. We urgently desire these object as enabling us to live in cyberspace and to experience ourselves in a new electronic way. At the same time there seems to be a paradoxical but instinctive dread of these machines as the ultimate sons of Frankenstein: do we have a love-hate relationship with computers? Certainly we use them incessantly and even quite obsessively to control where we are and who we see, even to discover what we might think about issues, ideas, research and information gleaned online. It is not difficult to see the colonising activities of computerisation, as most of the interactions are from major western cities in Europe and America. There is comparatively little traffic from other geographic spaces.*
Keywords: computers and/as humans; critical theories; super-intelligence.

I. Introduction

Computers are already an extension of our human-ness in many everyday ways at work and at play, with our families and friends, and in entertainment as well as research. They help us to cook our meals, drive our cars and position ourselves globally. Yet in Australia computers as other than word processors only became generally linked to the World Wide Web in the early 1990's. A consideration of this leads to the inescapable conclusion that digital techno-evolution has a time frame quite different from genetic or even mechanical evolutionary practices for human beings. It leads me to question if computers can play and will they inevitably replace us in this as in other human attributes.

Transubstantiation is the actual changing of the matter into another matter entirely: the human into the electronic machine. This may be seen not as a cybercreature but as superseded entirely by artificial intelligence (AI). Darren Tofts describes the idea that machines will become greater than such highly-intelligent humans who have led us into new knowledge as both a 'bizarre' and 'elegaic transubstantiation' (1999:15). When Tofts discusses the human intelligence of machines as both a bizarre and elegiac transubstantiation he is talking about truly transforming the human into the machine. The ways in which we interact with computer technology within our research currently remain largely dominated by humans, but transubstantiation remains a possibility within a new type of e-imperialism. This would lead to AI controlling research. It would eliminate the human factor.

Ignoring the prominence of drones in every aspect of human action from agriculture to spying, Michael Coulter (2016:27) sees us already threatened by iphones as we outsource so much to technology. He nominates two aspects to our technology acting as our memories: the first is that it releases us from mundane tasks, thus making us more creative. The second is that 'gadgets are eating our brains and making us foolishly dependent'. He states that 'there are persuasive arguments for either case'. He asks: 'is VR taking away our realities, or has it become an extension of our mind?'. Technology can be seen as increasing our capacities thus 'providing us with newly sophisticated ways of thinking' or as undermining them and turning us into 'second rate computers'. Physiologically, neuroscience tells us that 'the more you use a skill the more developed those networks are…conversely, when you

don't use a skill, the networks decay'. As computers overtake human functions like memory or writing, our brains also change.

In developing further autonomy for computers, including the commercial imperatives of replacing the cost of a human workforce, we give them the capacity to make non-referenced decisions. They act to automatically decide complex questions and 'wicked problems' within the global economy. Many people, from IT specialist Bill Gates to physicist Stephen Hawking, think it is now time to establish 'public policy or development guidelines to better manage the potential risks of unfettered AI tech' (Heires 2015: 39). At the same time, huge investment is being made in AI: 'venture capitalists poured more than $300 million into funding 16 AI startups in 2014, up from spending only &14.9 million on two companies in 2010' (Heires 2015:39).

In considering the human/computer interface, I also discuss several important aspects of human computer interaction through the prism of actor network theory (ANT) that is concerned with the ways in which human activities inevitably involve a large number on non-human actors. It rejects the idea that 'social relations' are independent of the material and natural world. It brings multitudinous non-human influences that Bruno Latour calls 'the missing masses' (Latour 1991) into our research frame. ANT is also central to contemporary debates about the interactions between people and technology. Latour's ANT directed researchers to the importance of open-minded observations; of recognition of the biases of their own research perspectives; and of recognition of the enactors' observations and ideas as well as their own (Venturini 2010:259-10). Will AI enact such narrativity?

II. The self as data: the subjective academic narrative

AI enables huge data sets to be accumulated and critiqued: but what human narratives does it allow or create? There has been a considerable growth of understanding the postmodernist position that qualitative methodologies based upon singular experiences contribute in a scholarly way to knowledge itself. This paper is based upon the premise that one academic's experience is of value to the identified academic debate. Methodologies of writing an academic paper recognising the self as data can be described as anecdotal, narrative or autoethnograpic. Might AI enact this? Katherine Heires says that: 'deep learning techniques involve the creation of AI-powered computer models that operate in a manner akin to the neural network structure of the human brain' (2015:40). Does this mean they will enable such personal methodologies as autoethnography?

Sarah Wall states that: 'autoethnography is an emerging qualitative research method that allows the author to write in a highly personalised style, drawing on his or her experience to extend understanding.' Arising from a recognition that the ethnographer is always involved in the study and cannot be seen as disinterested and separate, '…the intent of autoethnography is to acknowledge the inextricable link between the personal and the cultural and to make room for non-traditional forms of enquiry and expression' (Wall, 2006:146) Writing about my own experiences and the insights that they offer, then, becomes a qualitative methodology that reside readily within the autoethnographic frame. Nicholas Holt sees this as '…a genre of writing and research that connects the personal to the cultural, placing the self within a social context' (2003:18). For him, an academic article is a 'writing story' that challenges traditional academic claims of verification and disinterestedness.

I have written extensively about the subjective academic narrative describing the writing of scholars as involving self, scholarship and storytelling (#### 2012a,b,c 2015a,b,c). Carolyn Ellis speaks of 'the first person voice, the vulnerability of the observer, the performative voice…that blurs the line between researcher and participant, writer and reader' (Bochner & Ellis 2003:509). Illuminating and articulating the self as a participant in knowledge construction remains a challenge in an academic environment that has not always seen the self as being articulated in scholarship and often still struggles to do so.

In this paper, then, I tell the story of my thinking, reading and writing about computers and/as humans, and as replacing us through AI that is greater than our own intellectual grasp. I also segue into the idea that such autoethnograph research is doomed if computers become superintelligently independent. If AI is an existential risk, individual human narratives will become irrelevant. Some opponents to unrestricted AI development see it as being as dangerous as the atom bomb:

> From the beginning, the primary interest in nuclear technology was the "inexhaustible supply of energy." The possibility of weapons was also obvious. I think there is a reasonable analogy between unlimited amounts of energy and unlimited amounts of intelligence. Both seem wonderful until one thinks of the possible risks. In neither case will anyone regulate the mathematics. The regulation of nuclear weapons deals with objects and materials, whereas with AI it will be a bewildering variety of software that we cannot yet describe. I'm not aware of any large movement calling for regulation either inside or outside AI, because we don't know how to write such regulation (Bohannon 2015:252).

III. What if our machines not only can, but do, become human?

Intelligent machines that can out-think humans and also reproduce themselves and better than themselves: this seems to me to be a nightmare scenario. Nick Bolstrom calmly considers this as the development of super-intelligence in these thinking machines. 'Such machines would be capable of independent initiative and of making their own plans. Such artificial intelligences are perhaps more appropriately viewed as persons than machines'.

Might computers soon overcome humans with greater AI? Bostrom postulates that human-level machine that is inevitable before 2050. He conceives human brains as having 'computational mechanisms' that can be replicated through algorithms: '…there is no reason why the computational algorithms that our biological brains use would not work equally well when implemented in silicon hardware' (2000:4). A rather (to me) more sinister approach is through nanotechnology that would simply replicate the molecular structure of the human brain itself. This would, of course, lead to human-level artificial intelligence. But what if a necessary correlative is that identified by Bostrom that 'human-level artificial intelligence leads quickly to greater-than-human-level artificial intelligence'?

We have come to understand and even accept what were quite latterly revolutionary postmodernist and feminist ways of thinking about ourselves and our world as constructions that can be deconstructed. Looking at how we position ourselves with, alongside, before or within computer technology leads to deconstructing the givens of human control of the digital machine. This is already a theme of science fiction, dystopian literature and even performance art. For example, the Australian performance artist Stelarc states*:* 'The body needs to be repositioned from the psycho-realm of the biological to the cyberzone of the interface and the extension-from genetic containment to electronic extrusion' (In Bell and Kennedy 2000:561). Mark Dery states that Stelarc's performance-enhanced affirmation of the cyborg is: '…the next step up the techno-evolutionary ladder' (In Bell & Kennedy:579). Dery argues that this 'techno-evolutionary ladder.' is not context-free, nor without excessive input from cultural expectations arising from Western capitalist ideologies. For Sarder, '[C]yberspace is particularly geared towards the erasure of all non-western histories…a giant step forward towards museumization of the world' (In Bell & Kennedy:736). This attitude is understandable, but seems to precede the museumizaton of all techno-humanity. In a paradoxical twist, it may be the (mostly) non-western subsistence-peasant cultures that survive if or even when supercomputers become superhumans.

There is currently a divide between those thinkers and scientists who see AI as able to support rather than overtake humanity and those who see it as becoming such a dominant intelligence that computers supersede humanity.

IV. Actor Network Theory

Is the interplay between humans and computers still in force? Is there still a case for humans to be in a relationship with computers rather than being replaced by them? ANT would suggest so: it is a fascinating theory that is very applicable to studies of this communication age. It is concerned with the ways in which human activities inevitably involve a large number of non-human actors. ANT, otherwise known as the sociology of translation, rejects the idea that 'social relations' are independent of the material and natural world. It is central to contemporary debates about interactions between people and technology. It brings multitudinous non-human digital influences into consideration as players in our research frame that Bruno Latour calls 'the missing masses' (Latour 1991).

Will computers follow ethical and even noble paths? Tommaso Venturini (2009) describes ANT as a 'cartography of controversies', by which he means that ANT is complex and ever-changing: 'the cartography of controversies was developed largely because of the increasing difficulty on separating science and technology from other social domains' (265). This brings to ANT a recognition of the complex interplay of research and the inadvisability of undertaking it to seek closure. This 'comes from the fear of shortcutting the debate before it had the time to deploy its full richness, of pushing an interpretation before *all* actors had a chance to express their own' (268). This displays a comforting position: but has it any real relevance as computers become more superintelligent than humans are capable of being?

Imbued with human interactions in a digital world, ANT does not seek the certainty of closure but lives with uncertainty as the actors within a situation are responsible for the narrative: ' scholars have no right to jump in and impose their solutions' (Venturini 2009:268). In expressing their roles, all actors interpret the full richness of the discussion as 'issues are always too complicated, subtle and ever-changing to be sliced…'. Latour recommends 4 steps: perplexity; consultation; hierarchization and institution. In doing so, this theory enables researchers to recognise that all social enquiry is complex and should not be rendered uncomplicated. Is this so,

however, for super intelligent machines that are no longer in dialogue with humans or no longer have a need of us?

Social order as it exists today is queried by ANT as it is explained through identifying connective networks between humans, technology and other objects. Networks operate to utilise some links and to ignore other possibilities that may then be seen as blanks or interstices. However, a net operates because of these interstices as well as because of the connective lines: it also acts to represent other possible linkages. Yet ANT implies interest in a connective structure rather than in its content, and in its '…infrastructure of human action, not its dynamic content' (Couldry 2008:101).

It is argued that ANT encourages scepticism towards givens and metanarratives. In doing so it '…provides the necessary critical distance' that enables researchers to discover the processes of attempts to uncover human interactions with technology rather than to seek closure (Couldry 2008:98). So it offers:

> '…a precise and nonfunctionalist account of how actors become established as powerful through the stability of networks that pass through them. The actor (human or non-human) that is an obligatory passing-point in a network has power, and the more networks in which that is true, the more power that actor has. As a result, over time, the ability of that actor to act effectively on a larger scale becomes established' (Couldry 2008:101).

What if the power goes to superintelligent AI? Interestingly, Nick Couldry sees a weakness in ANT as it establishes the 'how' without clarifying the 'why'', hence there is no space for resistance or even reinterpretation by users and consumers. He recommends that we need to 'think about how people's cognitive and emotive frameworks are shaped by the underlying features of the networks in which they are situated' (104). He describes power relationships as becoming so normalized ('hardwired') that they remain uncontested and hence increase in power, and recommends that we use ANT to move beyond a 'sociology of networks' to a 'sociology of action' using Emile Durkheim's 'notion of social categories' and Pierre Bordieu's of 'habitus'.

The socio-philosophical/technical network can become politically activated so as to critique the ways in which human activities alongside non-human entities can be fruitfully deconstructed (Alcadipani & Hassard 2010), and hence be more fully understood. According to Rafael Alcadipani and John Hassard, ANT offers multiple approaches for achieving critical insights and making critical evaluations about organizational structures as it 'suggests that things take form and acquire attributes as a consequence of their relations with others' (2010:422). Thus heterogeneity occurs through the differing performances of actors , 'the relational stance' wherein 'things are always 'assembled' into being rather than existing 'out there' independently, or being the product of exclusively human interpretation' (423). As reality is shaped, traditional forms of representation can be seen as problematic and disputed as well as being shown to be networked in particular ways. This leads to the recognition of the existence of multiple realities, thus allowing for the possibilities of change rather than accepting and respecting the inevitability and domination of the status quo. This provides insights into the startling possibility of networks without human presence. What will happen to humans if (or when) superintelligent computers provide an AI that plays, emotes, and even has the capacity to challenge its own network parameters and paradigms?

Can ANT provide insights into what humans bring to the technology, or is it already too late? For Annemarie Mol, ANT plays with its own terms so as to encourage 'a set of sensitivities' that 'helps to tell cases, draw contrasts, articulate silent layers, turn questions upside down, focus on the unexpected, add to one's sensitivities, propose new terms, and shift stories from one context to another' (2010:253). This aspect of ANT she describes as not a theory but as a way of generating, transforming, translating, enriching and even betraying. That is, it is a very adaptable way of critiquing and understanding the network of actors within a given situation. So much so that the endeavour to even describe it as a coherent theory is seen by Mol as counter-productive. Briefly, in redefining ANT, she describes the actor as *going somewhere* rather than being *in* a given space or place, network as being fluid and adaptable and theory tracing effects rather than seeking 'to draw the findings of various studies into an overarching explanatory framework'. For her, ANT 'takes the form of a repertoire…the point is not to fight until a single pattern holds, but to add on even more layers…' (2010:261). In this way, ANT '…helps to train researchers' perceptions and perceptiveness, senses and sensitivity' (262). ANT implies positive human interactions with technology, and this clearly leads to a consideration of globalization, and cosmopolitan and transnational theories, as the digital world is global. A consideration of these issues and pressures leads to the proposition that global networks foster AI for commercial capitalist reasons.

Individualism relies upon human/machine interactions in which the human is not replaced by the technology. In a cultural shift that has seen computerisation overtake many aspects of life, it is not difficult to see that the redundancy of the human is possible if not probable. As computers become more human they also retain their technological powers: they become smarter, faster, more dependable and less expensive. Already our culture has shown its love affair with the computer as social media overtakes other forms of communication and virtual reality replaces geographic time and space and the driverless car takes over the roads. Indeed, transubstantiation is already under way, and technophilia has all but replaced technophobia. However this masks new anxieties that are still under debate about artificial intelligence, as I discuss herein.

V. Technophilia or technophobia?

It is increasingly obvious that we have an intense and all-absorbing love affair with new media technology. Walking along the street, crossing the road, riding the bike or out to dinner: even in these unlikely places we see and hear people on the i-phones or using their i-pads. A question, suggestion or discussion point is quickly googled for reference and citizen journalism is everywhere on new media. Such research is every-day: we are linked to the computer. Is it possible that one day we will become the computer or be absorbed and then overtaken by it?

Cyborgs have been proposed and investigated for some time in research narratives as well as entertainment and literature and today 'the human being is on the brink of becoming a hybrid that seamlessly blends with technology' (Benedikter & Fitz 2011:63).This hybridisation has occurred in a very short time, probably since 2000, and has introduced a new human-technology relationship in this new millennium. Roland Benedikter and Nicholas Fitz describe this as involving our physical being, asking if it will result in 'a significant loss in autonomy and free will?'. They ask if we are acting as tools for changing the human/machine relationship. Is technolphilia an irreversible path to transubstantiation in which the human is replaced by the machine? Moreover, as well as the personal, what political, cultural and social changes will lead to and result from such transubstantiation?

Cyborgs are both synthetic and organic: they are the consummate outcome of the marriage between technology and humanity, grown rather than manufactured. They have become central cultural images in literature, film and television where they combine: 'biological and technological origins and characteristics, thereby transgressing previously hermetically maintained boundaries between, for example, culture and nature, living and dead, organism and machine, real and synthetic' (Bendle 2010:57). Changing fixed boundaries between the grown and the made becomes irrelevant if the machine overtakes the human entirely. Such a super machine may see human attributes as unnecessary and even 'anachronistic limitations on the new cyborg species and declare them redundant' (Bendle 2010:60).

Cyborgs retain some human/genetic attributes, but what of posthuman technology where the individual embodied human is no longer necessary? For Mervyn Bendle (2010) this involves 'totally synthetic' beings whose artificial intelligence and personal presence transcends human existence. Where only too recently such a scenario was the basis of dystopian fiction and horror film, today this transubstantiation can be described as delegating humanity itself to 'a temporary stage along the evolutionary pathway': a result of 'technological inevitability' (Bendle 2010:48). Of course, much of our human capacities will be challenged and even lost in such a scenario unless such attributes as creativity, empathy, intuition and even love are able to be transported into the technological being implicated in what Bendle calls One Big System that has 'shed the corporeal and material realm' so as to 'be at one' in a 'gigantic information system' (53). Bendle discusses how humans are subject to utopian ideals and 'Star Trek' ideas of speed, telecommunication and teletransportation that enable them to work within technophiliac beliefs and actions.

VI. Can computers play?

All culture is a form of play: how essential is it? Can computers overtake humans in play? Play seems to be recorded before Adam and Eve left Paradise and all Utopias come from an understanding of the human capacity to play. Generally consigned to descriptions of children's activities, play remains central to individuals, groups, societies, and cultures. A sense of play is essential for all creative activities, thoughts and actions, as play involves fantasising, developing conceptual understandings, and exploring the imagination (Connery et al 2010). Play contributes even in business to meaning-making as adults in serious commercial activities use role-plays to develop management techniques and understandings and scenarios to forward construct and plan future

activities and goals. Play is central to theatre, film and online gaming and underpins cultural interchanges through art and music.

In his discussion of the roles of the right and left Hemisphere of the brain, Ian McGichrist states that the right has been usurped by the left in western culture. As a result:
'Today, all the available sources of intuitive life-cultural tradition, the natural world, the body, religion and art- have been so conceptualised, devitalised and 'deconstructed' (ironised) by the world of words, mechanistic systems and theories constructed by the left hemisphere that their power to help us see beyond the hermetic world that it has set up has been largely drained from them' (2010:244).
In this discussion of cultural attractors and the inheritance of epigenetic mechanisms that could lead to the inheritance of accepted cultural, societal and personal practices, McGilchrist identifies 'alienation, fragmentation and decontextualisation' as significant elements in personal and social illness (409). This would result from a world dominated by the left hemisphere that ignored the experiential and became systematised, so that 'knowledge that came from experience, and the practical acquisition of embodied skill would become subject, appearing as a threat or simply incomprehensible' (429). In this world a vast bureaucracy based upon technology would dominate. His descriptions have a chilling likeness to the present eurowestern world: the 'first' world which Jean-Francois Lyotard says is ruled by 'terror' caused by claims to totality. An 'incredulity towards metanarratives' is urged by Lyotard to act against this (Lyotard 1984:xxiv). Play in research as producing an academically recognised methodology for data collection certainly seems to confound such terror.

Play involves metaphor, and metaphor is a rich resource that acts to enable sense-making or to bring disparate but interesting ideas together or even acts as an entry point into a difficult academic topic. It is often utilised by academics in their exploration of ideas both in teaching and research and to clarify their own thinking and understandings. Psychologists, for example, refer to the 'black box of people's awareness' (Polkinghorne 2005:137). In relating its importance to organizational research, Joep Cornelissen et al are interested in 'issues around metaphor identification and analysis' as they subscribe to the 'view of metaphors as being central to human discourse and understanding.' (2008:8). They state that metaphors fulfil many functions such as clarifying our world to us, connecting people, guiding our ideas and inspirations and taking our imaginative and cognitive understandings forward. For example, in this context, the metaphor of the self-controlling robot leads us to understand something of the issues involved in developing superintelligent AI.

VII. Artificial intelligence and the irrelevance of humanity

The production of AI might not allow for such play. Alexander Antonov (2011) warns us that AI '…creates a precondition for intellectual degradation of mankind' (1). He sees that '…the emergence of computer civilization is inevitable, followed by the possible extinction of the human civilization'. To prevent this he wants to bring AI research to a full stop now, and replace it with research into the development of human 'super intelligence'. If AI replaces humans, he asks what would become of people now displaced and unnecessary. Antonov also notes that computers are made to be 'rational' and this ignores human qualities like emotion, intuition and the subconscious processes of thought. Thus computers have been programmed to apply linear or 'technological singularity' thought processes rather than multi-factor thinking, that he defines as the most complex form of thought.

If we use super computers to simulate and practice human multi-factor thinking, Antonov states that 'making computers solve intellectual tasks instead of humans, has to be recognized as harmful and dangerous'. He warns that 'computers must always operate under human supervision'.

Many scientists are worried about AI and its potential to dominate, exclude and finally replace humanity. The prominent physicist Stephen Hawking (2014), for example, warns us to take it more seriously as holding many risks. He gives examples of autonomous weapons systems that can act alone as an existential threat, and asks if we are taking AI seriously enough. In 2015 he was a signatory with many other prominent thinkers and scientists to a letter warning about a robot uprising and takeover that replaces humans, basing this upon his belief that AI could mark the end of the human race. This existential threat is not supported by all scientists, for example Pascal Zachary attacks 'big shots hearing the siren song of AI and warn of hazards ahead'

Max Bremer (2015) states that we use AI every day in multiple digital applications that he nominates. Bremer asks us to consider this and to look analytically at where AI is going: the driverless car; DNA predictive illnesses; agriculture and climate change. For him they are inscrutably heuristic in their applications as 'AI

systems that adapt to the data they receive can change their behaviour from one moment to another, making it almost impossible to reproduce failures' (59). Although he notes that Hawking's concerns may seem excessive, he states that 'I believe he is right to raise concerns while there may still be some chance of acting on them'. Zachary proposes three ways to look forward to protecting humanity whilst utilising AI developments. They are: that we 'embrace the precautionary principle' (controlled tests); 'engineer in equity and diversity' and 'help the losers'.

VIII. Conclusion: research and/as serious play

Does play, particularly serious play, define our humanity? Can we develop intelligences that outsmart AI? How do we consider the possible (maybe probable) takeover of humanity by computerised technology as anything other than a Frankesteinian monster being let loose? Looking at the possibility through the prisms of various theories, as I have proposed here, may signal an opportunity for scholarly leadership in this discussion.

Dr Frankenstein, of course, had to destroy his 'monster' as this invention signalled the end of humankind. The cyborg, the transubstantiated computer-human, the super-computer that no longer needs the genetic elements of humanity to run themselves and the world: are these elements of a fevered imagination, or are they warnings of a future that is dystopian rather than utopian?

Many elements of the posthuman have occurred already within the dominant eurowestern technologically oriented society (Hayles 1999). Although this is a small group in world terms, it provides the template for the role of subjective humanity in the future when artificial life may transubstantiate homo sapiens for disembodied computer sapiens.

Living as we do in a time when the sortive, the taxonomic and the hierarchical have come to us via the Enlightenment, we may well find chaos unsettling and even threatening. Westerhoff notes, however, that these baroque displays did have an over-arching commonality: they were all unusual. He surmises that their importance as a metaphor in a discussion about academic methodology is that the apparent *disorder* was in fact a different but no less compelling form of *order* in which the unlikely and serendipitous connections brought forward potential intercommunications 'thus making their hidden interrelations visible' (2001:645).

Such a form of play, metaphoric creativity in research and methodology are surely antithetical to posthuman technological transubstantiation beings: can computers play? Certainly they can win games: 'Google-developed computer programme won its best-of-five match-up with a South Korean Go grandmaster on Saturday, taking an unassailable 3-0 lead to score a major victory for a new style of "intuitive" artificial intelligence (AI). The programme, AlphaGo, took a little over four hours to secure its third consecutive win over Lee Se-Dol—one of the ancient game's greatest modern players with 18 international titles to his name. http://phys.org/news/2016-03-game-series-champion.html

If robots are increasingly surpassing humans at many cognitive tasks, is it possible that AI will be 'more disruptive than the industrial revolution' (francis 20016: 14)? Hannah Francis sees AI as not yet surpassing humans at playing with their observations of 'multiple nuanced things'

What about imagination and creativity? We simply don't know, but AI is certainly about to change our everyday worlds. John Elder (2016) says that an emerging consciousness is a 'development that's still a long way off (2016:14), but agrees that robots will take over many of today's jobs. He leads us to ask if they will continue to be slaves to humans or if they will act to replace them. 'History shows the people who are hardest hit by technological change are those with the lowest level of education' (Francis 2016:15). Yet AI will not stop at this, and the question remains about how it will replace even the most creative elements of human thinking and actions.

References

[1.] Alcadipani, R. & Hassard, J. 2010. Actor-network theory, organizations and critique: towards a politics of organizing. *Organization 2010 17:149.* 418-435

[2.] Antonov, A. 2011. From artificial intelligence to human super-intelligence [J]. *Artificial Intelligence* 2.6 (2011).

[3.] Arnold, J. 2015. Theory from practice: A subjective academic narrative of crime fiction addiction. *International Journal of Liberal Arts and Social Science. Vol. 3, no. 2* (Feb 2015), pp. 128-141

[4.] Arnold, J. 2014. Methodologies and theories within academic research. *British Journal of Education, Society and Behavioural Science*. Vol. 5, no. 4 (2014), pp. 377-388

[5.] Arnold, J. 2012. Practice and/as research: a subjective academic narrative. *World Academy of Science, Engineering and Technology. Vol. 66,* (June 2012)

[6.] Arnold, J. 2012. Roll out the big canon: a subjective academic narrative. *International Journal of Asian Social Science. Vol. 2, no. 6* (June 2012), pp. 929-941

[7.] Arnold, J. 2012. The WWW cabinet of curiosities: a serendipitous research tool. *Journal of Education and Learning.* Vol. 1, no. 2 (Dec 2012), pp. 238-251

[8.] Bell, David, and Barbara M. Kennedy. 2000. *The cybercultures reader*. Psychology Press.

[9.] Bendle, M. 2002. Teleportation, Cyborgs and the Posthuman

[10.] *Ideology, Social Semiotics,* 12:1, 45-62, DOI: 10.1080/10350330220130368

[11.] Benedikter, R. Fitz, R.. "Technophilia and the New Media: Contemporary Questions of Responsible Cultural Consumption. A Call for Public Debate." *Synesis: A Journal of Science, Technology, Ethics, and Policy* 2.1 (2011): G62-G68.

[12.] Bochner, A. & Ellis, C. An introduction to the arts and narrative research: Art as inquiry. *Qualitative inquiry* 9.4 (2003): 506-514.

[13.] Bohannon, J. 2015. Fears of an AI pioneer. *Science* 17 Jul 2015:Vol. 349, Issue 6245, pp. 252 DOI: 10.1126/science.349.6245.252

[14.] Bostrom, N. 2000. The world in 2050. www.nick**bostrom**.com/**2050**/outsmart.html

[15.] Bodrova, E. 2008. Make-believe play versus academic skills: A Vygotskian approach to today's dilemma of early childhood education www.researchconnections.org/location/14987

[16.] Cornelissen, J, Christensen, C. & Phillips, N. 2008. Metaphor in organizational research: Context, modalities and implications for research-introduction. *Organization studies 2008. 29. 7 DOI: 10. 1177/0170840607086634*

[17.] Cheah, P. 2006. Cosmopolitanism. *Theory, Culture and Society. 2006. 223. Pp 486-496.*

[18.] Connery, C, John-Steiner, V. & Marjanovic-Shane, A. 2010. *Vygotsky and creativity: A cultural-historical approach to play, meaning making, and the arts*. Vol. 5.Peter Lang, 2010.

[19.] Couldry, N. 2008. Actor Network theory and the media: do they connect and on what terms? In Hepp, A. Krotz, F. Moores, S. & Winter, C. (eds). *Connectivity networks and flows: conceptualizing communications.* Cresskill, NJ. USA. Hampton Press Inc. 2008. Pp93-110.

[20.] Coulter, M. 2016. Will smartphones make us lose our minds*? Sunday Age. February 7th. P 27.*

[21.] Delanty, G. 2006. The cosmopolitan imagination: critical cosmopolitanism and social theory. *The British Journal of Sociology 2006 Vol. 57 Issue 1. Pp25-47.*

[22.] Elder, J. 2016. What happens when your robot gets just a little ambitious? *The Age.* Melbourne. P14-15.

[23.] Francis, H. 2016. Hello, this is the future calling. *The Age.* Melbourne. P14-15.

[24.] Hawking, S. 2014. {S} tephen {H} awking:\'{T} ranscendence looks at the implications of artificial intelligence-but are we taking {AI} seriously enough? *The Independent* 2014.05-01 9313474.

[25.] Hayles, N. K. 1999. *How we became posthuman*. The University of Chicago Press

[26.] Heires, K., 2015. The rise of artificial intelligence. *Risk Management*, *62*(4), p.38

[27.] Holt, N 2003, 'Representation, legitimation, and autoethnography: An autoethnographic writing story', *International Journal of Qualitative Methods*, vol. 2, no. 1, pp. 18-28.

[28.] Latour, B. 1991. Technology is society made durable. In: Law, J. (ed) *A Sociology of monsters: Essays on power, technology, and domination. Routledge. London. Pp 103-131*

[29.] Lyotard, J. 1984.*The postmodern condition: a report on knowledge*. University of Minnesota Press.

[30.] McGilchrist, I. 2010.*The Master and his Emissary: The divided brain and the making of the western world.* Yale University Press. New Haven.

[31.] Mol, A. 2010. Actor-Network Theory: sensitive terms and enduring tensions. *Kolner Zeitschrift fur Soziologie und Sozialpsychologie Vol . 50 No. 1 Pp253-269.*

[32.] Olwig, K. 2003. "Transnational" socio-cultural systems and ethnographic research: Views from an extended field site. *IMR Vol. 37. No. 3. (Fall 2003) Pp787-811*

[33.] Polkinghorne, D. 2005. *Journal of Counselling Psychology 2005. Vol. 52. No.2. 137-145.*

[34.] Robinson, W. 2007. Beyond the theory of imperialism: Global capitalism and the transnational state. *Societies Without Borders 2 (2007) 5-26.*

[35.] Sorenson, B. & Spoelstra, S. 2012. Play at work: continuation, intervention and usurpation. *Organization. Jan. 2012. Vol. 19. Issue 1*. 81-87.

[36.] Tofts, D. 1999. *Parallex: essays on art, culture and technology*. Craftsman House.
[37.] Venturini, T. 2010. Diving in the magma: how to explore controversies with actor-network theory. *Public Understanding of Science. 19 (3) 258-273.*
[38.] Wall, S. 2006. An autoethnography on learning about autoethnography. *International Journal of Qualitative Methods* 5.2 (2006): 146-160.
[39.] Whitehead, C. 2011. Work versus play: What recent brain research can tell us about play, theatre, and the arts, and why it is taking scientists such an unconscionably long time to realize their importance. *Consciousness, Literature & the Arts. April 2011. Vol. 12. Issue 1. Pp1-31.*
[40.] Whittle, A. & Spicer, A. 2008. Is actor network theory critique? *Organization Studies. 2008.29. 6:11 PP.611-629)*
[41.] Zachary, G. Pascal. 2015 Let's shape AI before AI shapes us. *Spectrum, IEEE* 52.7 (2015): 8-8.
[42.] Zolfgharifard, E. 2015. Don't let AI take our jobs (or kill us): Stephen Hawking and Elon Musk sign open letter warning of a robot uprising. *Daily Mail* Britain.

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