Cybernetic-Existentialism and Being-towards-death in Contemporary Art and Performance

Steve Dixon

Reviving Past Paradigms

I have recently developed a discourse, or theory, of "cybernetic-existentialism," arguing that impulses and themes from both of these largely forgotten fields have steadily reemerged to manifest in many contemporary artworks and performances (Dixon 2016). Cybernetic systems are employed across a wide range of interactive and technological arts practices, but they are equally evident in many nontechnological works. At the same time, existentialist themes such as freedom, authentic action, self-creation, and what Jean-Paul Sartre terms "Being-for-others" and "Being-towards-death" ([1943] 2003) are increasingly foregrounded by artists. Anticipation of our own death, Sartre's "Being-towards-death," is my primary focus. It has been a prevailing theme across modern philosophy, from Søren Kierkegaard and Martin Heidegger through to

Sartre and Simone de Beauvoir, employed as a revelatory memento mori to emphasize our need to act decisively, meaningfully, and "authentically," and to assert individual freedom.

Cybernetic art developed in the 1950s by artists such as Nicholas Schöffer and Roy Ascott, and reached popular consciousness in the late 1960s through the work of practitioners including Tsai Wen-Ying, Gordon Pask, and Hans Haacke, as well as notable events such as the 1968 *Cybernetic Serendipity* exhibition at London's ICA gallery. It featured machines as quasi-autonomous art-makers, and computers as interactive agents that collaborated and "performed" with gallery visitors. Peter Zinovieff's *Music Computer* (1968) improvised on the tunes that visitors whistled, another cocreated haiku poems by incorporating some words selected by the participant with others it chose from within its thesaurus (Margaret Masterman's *Computerized Haiku* [1968]). The critically acclaimed exhibition marked a significant moment when cybernetics stepped into the foreground in the arts, and when artworks began to be reconceived in terms of processes and systems, rather than objects.

Cybernetic aspects of art practices are notably clearer when, firstly, the work is interactive and the participant is incorporated as a meaningful node within a wider system in which they have concrete agency; and secondly, when high technologies are employed. Australian artist Stelarc's work is a quintessential example of the latter, employing advanced technological cybernetic systems including a large walking robot *Exoskeleton* (1998), a robotic *Extended Arm* (1999), and a surgically implanted *Ear On Arm* (since 2009) with integral blood flow, while also pursuing what Sartre terms an existentialist "grand project" towards transcendence (from everydayness and "facticity") and self-creation (through body modifications and cyborgic appendages). Perhaps the definitive cybernetic-existentialist artist, Stelarc is, in his words: "a genetic sculptor, restructuring and hypersensitizing the human body; an architect of internal body spaces; a primal surgeon, implanting dreams, transplanting desires; an evolutionary alchemist, triggering mutations, transforming the human landscape" (1984:76).

However, cybernetic paradigms can equally pervade works that are noninteractive and non-technological, and this applies to an area of arts practice as well. So, where Stelarc epitomizes the cybernetic dream of a human-machine symbiosis, Chinese artists Sun Yuan and Peng Yu's 个或所有 (*One or All*; 2004)—a sculpture of what appears to be a giant piece of white chalk that leans against the gallery wall—uses an analogue cybernetic paradigm in as equally an extreme manner as Stelarc, but in the form of a human-artwork symbiosis. It is made out of human bone ash, and is one of the artists' many provocative meditations on death. From an existentialist viewpoint, the significance of transforming the real bone ash of numerous human cadavers into a towering stick of chalk is that it potentially writes: we are free to write our own stories, rules and fates, and our presence can endure even after death. In the face of a monumental and humbling sculptural statement of Being-towards-death, the piece emphasizes the fundamental existentialist belief in the importance of appreciating our finitude, and therefore writing our lives meaningfully in response.

Figure 1. (facing page) Fighting dogs, information theory, a cybernetic system of treadmills, and existentialist notions of Being-towards-death (almost) collide in Sun Yuan and Peng Yu's cacophonous Dogs That Cannot Touch Each Other *(2003). (Courtesy of Sun Yuan and Peng Yu)*

Steve Dixon is President of LASALLE College of the Arts in Singapore, and is an interdisciplinary arts practitioner. He is Cofounder and Advisory Editor of the International Journal of Performance Arts and Digital Media*, and has published in journals including* TDR*,* Performance Research*,* LEONARDO*,* Contemporary Theatre Review*,* Digital Creativity*, and* CTheory*. His 800-page book* Digital Performance: A History of New Media in Theater, Dance, Performance Art and Installation *(The MIT Press, 2007) won two international awards including the Association of American Publishers Award for Excellence in Music and Performing Arts. steve.dixon@lasalle.edu.sg*
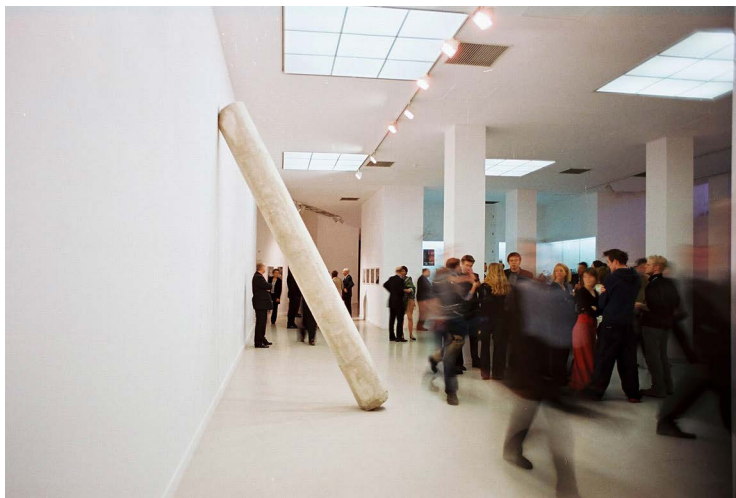
Figure 2. Sculpted from human bone ash, Sun Yuan and Peng Yu's One or All *(2004) proffers an arresting existential reminder to write our lives meaningfully. (Courtesy of Sun Yuan and Peng Yu)*

Cybernetic-existentialist inclinations are alive and well across many different contemporary art forms, including "relational" arts. Although Nicholas Bourriaud's defining book, *Relational Aesthetics*, makes little explicit reference to either cybernetics or existentialism, he draws closely on ideas central to both, with relational art taking "as its theoretical horizon the realm of human interaction and its social context" ([1998] 2002:14). While cybernetic notions of communications systems and interactive feedback loops provide the pivotal paradigm to the artistic movement Bourriaud describes as "an arena of exchange," he also adopts ideas and rhetoric that are patently existentialist. Like the positions taken on life and *Being* by the philosophy's major thinkers, here: "Art is a state of encounter [...] the role of artworks is no longer to form imaginary and utopian realities, but to actually be ways of living and models of action" (13). Bourriaud adopts overtly existentialist language in many of his book's most cited sections and, like Sartre, suggests that intense human interactions and Being-for-others are core to authentic being, since:

> our "form" is merely a relational property, linking us with those who reify us by the way they see us [...] When an individual thinks he is casting an objective eye upon himself, he is, in the final analysis, contemplating nothing other than the result of perpetual transactions with the subjectivity of others. [...] The artistic practice thus resides in the invention of relations between consciousness. [...] As part of a "relationist" theory of art, inter-subjectivity does not only represent the social setting for the reception of art, which is its "environment," its "field" (Bourdieu), but also becomes the quintessence of artistic practice. (22)

Bourriaud thus remediates and transposes Sartre's relational phenomenology directly into his theory of relational aesthetics. However, the rigor and originality of the movement's underlying theories (as well as some of its key artworks) have been questioned, notably by Claire Bishop, whose critique might also be remediated to hint at how cybernetic-existentialist impulses within interactive arts have been strong throughout decades: "This idea of considering the work of art as a potential trigger for participation is hardly new — think of Happenings, Fluxus instructions, 1970s performance art, and Joseph Beuys's declaration that 'everyone is an artist'" (2004:61).

Being-for-others

Marina Abramović's *Rhythm 0* (1974) offers another interesting example of what I would term a nontechnological cybernetic-existentialist performance. Abramović inhabits a room containing many objects and reacts entirely passively when gallery visitors adorn her with the feather and flowers, cut her with the knives, and point the real loaded gun at her (MAI 2013). The piece thus creates a self-organizing and regulating "heterarchic system" — a term coined by cybernetician Warren McCulloch to describe neuronal networks that operate on equal,

nonhierarchical systems of inter-
action (1945). At its heart, cyber-
netics is not technology-specific
but rather focuses on systems of
any type that connect and inter-
act. In *Rhythm 0*, despite a lack
of computers or high technol-
ogy, a number of such systems
are nonetheless put into play,
and interconnect and evolve
with dynamic results. Moreover,
all of these microsystems that
converge and synthesize in the
performance can simultaneously
be seen to relate strongly to exis-
tentialist principles, including
the following:

1. *An open interactive system*,
   which confers absolute
   freedom on individuals to
   do what they wish. Simone
   de Beauvoir calls freedom
   "the original condition of
   all justification of exis-
   tence" ([1947] 2000:284)
   and Sartre asserts that:
   "Human freedom precedes
   essence [...] and makes it
   possible; the essence of the
   human being is suspended
   in his freedom. [...] Man
   does not exist *first* in order
   to be free *subsequently*;
   there is no difference
   between the being of man
   and his *being-free*" ([1943]
   1994:25). This in turn
   opens up moral and ethical
   questions (de Beauvoir

Figure 3. Marina Abramović's perilous six-hour performance Rhythm 0 *(1974)
utilizes different cybernetic micro-systems and enables audience participants to
practically explore Existentialist principles including freedom, the master-slave
dialectic, and Being-for-others. Studio Morra, Naples. (Courtesy of Marina
Abramović Archives)*

[1947] 2000) involving conundrums of authenticity (Kierkegaard [1843] 1986; Heidegger
[1927] 1962) and responsibility for one's actions (Camus [1942] 1991; Marcel 1949) since,
while we should be courageous in asserting our own freedom, we should not inhibit—and
should rather promote and advance—the freedom of others (Sartre [1943] 1994).

2. *A system of Being-for-others*. Sartre discusses how the judging "look" of another person can
   jolt us into fundamental existential revelations, for example: "With the appearance of the
   Other's look I experience the revelation of my being-as-object; that is, of my transcen-
   dence as transcended [...] [and] my being-there-for-others for which I am responsible. [...]
   The shock of the encounter with the Other is for me a revelation of emptiness of the
   existence of the body outside as an in-itself for the Other" ([1943] 2003:375). Recognition
   of Being-for-others also operates to temper solipsistic tendencies when asserting personal
   freedom, and illuminates the (false) notion of a defined "self" (Karl Jaspers's notion of
   existenz [1935] 1955) by reversing conventional subject-object relationships: "*I am for*

others, the Other is revealed to me as the subject for whom I am an object" (Sartre [1943] 1994:460). Abramović offers herself up as an object in the service of others, in a humble act of total existential "availability," what Gabriel Marcel terms *disponibilité* (1949).

3. *A master-slave system* that manifests existentialism's concerns both to counter "slave morality" (Nietzsche [1887] 1996) and to recognize that in our relations with other people, we act as both sadists and masochists (Sartre [1943] 1994), and "oscillate between them in an ongoing master-slave dialectic—the failure of one modality refers to and motivates the adoption of the other" (Reynolds 2006:108).

4. *A system of tools* (the props), which were the object of extended discourse in existentialism following Heidegger's discussion of the ontology of the hammer ([1927] 1962) and Merleau-Ponty's of the blind man's stick ([1945] 2002), also discussed at length by cybernetician Gregory Bateson (1972). In *Rhythm 0*, tools are reconfigured and deployed in myriad ways, and include real instruments of death that may be employed, eliciting an actual anticipation of Being-towards-death, and conferring "intensity": as Michael Foley notes, "intensity rather than serenity is the existentialist goal" (2010:23).

Pointing the loaded gun at Abramović marks an extreme existential moment, and acts of murder pervade existentialist literature, and are equated either with moments of recognition of nothingness and the absurd, as in Camus's *L'Etranger* (*The Outsider*, 1942) or with "authentic" choice and action, as in the conclusion of Sartre's novel *Iron in the Soul* (1949). Mathieu, the ineffectual schoolteacher protagonist, for the first time in his life has "recognition of his own freedom" (Priest 2000:15) and makes a decisive choice to shoot a German infantryman: "For years he had tried, in vain, to act," writes Sartre. "He fired. He was cleansed. He was all powerful. He was free" ([1949] 1963:217, 225).

But while the heroes and antiheroes of existentialist literature invariably pull the trigger, the gun wielders who faced Abramović did not, and the notion of responsibility and respecting others' freedom prevailed. To apply Marcel's notion of disponibilité to the gallery visitors, by maintaining their openness and "availability" to the Other, they ultimately resisted treating the passive Abramović as a mere object or a slave, and afforded her respect in the second, rather than third person:

If I treat a "Thou" as a "He," I reduce the other to being only nature; an animated object which works in some ways and not in others. If, on the contrary, I treat the other as "Thou," I treat him and apprehend him *qua* freedom. I apprehend him *qua* freedom because he *is* also freedom and not only nature. (Marcel 1949:106–07)

The Cybernetic Attitude

Cybernetics emerged in the 1940s, its founding figures including Claude Shannon and Warren Weaver (1949), as well as Norbert Wiener, whose 1948 book *Cybernetics: or, Control and Communication in the Animal and the Machine* most clearly announced and defined the field. While it highlighted and celebrated the potentials of high technologies including (then novel) digital electronic computer systems, it also fused together vastly different scientific developments and disciplinary fields, from engineering and neural networks to information and decision theory, psychology, and social sciences. Eleven years later, Stafford Beer wrote:

Some people think that cybernetics is another word for automation; some that it concerns experiments with rats; some that it is a branch of mathematics; others that it wants to build a computer capable of running the country. My hope is that [...] people will understand both how these wonderfully different notions can be simultaneously current, and also why none of them is much to the point. (1959:vi)

Andrew Pickering's book, *The Cybernetic Brain: Sketches of Another Future* (2010) focuses on Beer and three other pioneering British cyberneticians, and has brought fresh perspectives to bear on the history and philosophy of the field. He suggests that cybernetics is not so much an

interdisciplinary field as an "antidisciplinary" one "riding roughshod over disciplinary boundaries," and calls it "a general theory, applicable to all sorts of complex systems" from the brain and the British economy to the evolution of the species (2010:8–9). He also emphasizes the centrality of *adaptive* systems to British cybernetics. These include Grey Walter and Ross Ashby's contributions to physiology and psychology; Beer's applications of the metaphor "team syntegrity" to social, organizational and management models; Gordon Pask's adaptive robot artworks and interactive theatre creations; R.D. Laing's developments of adaptive systems within psychiatry; and Gregory Bateson's innovations concerning "the adaptive subject or self" (8).

Thus, the presence of technology or computation is not intrinsic to making a system cybernetic. Pickering suggests that "cybernetics is better seen as *a form of life*, a way of going on in the world, even an attitude" (9) that can be applied not only across scientific disciplines, but to society, business, culture and everyday life—and in this it shares much with the phenomenological Being-in-the-world principles of existentialism. It is within these broader paradigms that I locate the cybernetic impulse in contemporary arts when high technologies are either not present, or else not a decisive factor in the artwork. It is where one discerns what Pickering terms a cybernetic "attitude" or Michael J. Apter calls "a certain attitude to complex purposeful systems" (1969:261); or where an artwork acts as an *adaptive* force (either within itself or through its impact on the audience); or through the types of synthesizing and synergizing processes that lie at the heart of the cybernetic project.

Anish Kapoor's *Descension*

The 2015 installation of Anish Kapoor's *Descension* (2014) is a 16-foot-diameter hole in the floor in which a seemingly perpetual spiral of black water circles, froths, and spills into itself like a giant, all-consuming plughole into the unknown. (The initial installation was 10 feet across and restricted by a guardrail.) It shares with Richard Wilson's classic *20:50* (1987) oil installation an eerie, deathly blackness and the sense of an infinite, unknowable depth. But whereas Wilson's black oil inspires awe through implacable stillness, Kapoor achieves it through a kinetic fury, presenting a dramatic spectacle of darkly violent aquatic splendor that compels the viewer's gaze into a churning, disappearing vortex. It is a vivid reminder of Sartrean "nothingness"—his ontological counterpoint to "being," which, he stresses, is equally important to acknowledge, confront, and accept within our lives—and an all-consuming anxiety in the face of nothingness. As Dermot Moran puts it:

> Anxiety is the recognition of a certain nothingness, a groundlessness in our existence. As Sartre will later describe it, anxiety leads us into a kind of vertigo where we literally have no ground beneath our feet. But anxiety thus serves to reveal that we are caught up in a structure of care about the world; that it is not a matter of indifference for us. (2000:241)

Interestingly, Kapoor adopts Sartrean language in describing the piece as akin to the metaphor of Plato's cave whereby, rather than looking towards the outside world (equivalent to *Being*), we instead contemplate:

> the back of the cave, which is the dark and empty back of being [or in Sartre's formulation, nothingness] [...] It is the place of the void, which paradoxically is full—of fear, of darkness. Whether you represent it with a mirror or with a dark form, it is always the "back," the point that attracts my interest and triggers my creativity. (in Jobson 2015)

Such themes are central to Kapoor's work, and his earlier *Descent into Limbo* (1992) featured another circular void—an entirely dark and endless-seeming hole into the earth, within the floor of an off-white cuboid building. But conceptually, *Descension* reaches another dimension in evoking a sense of Heideggerian Being-towards-the-end, offering up a vertiginous spiral into the existential void. Its gushing noises are harrowing and haunting, and the installation is a very real and dangerous force of nature that eerily offers up—and draws down—a foreboding sense of the uncanny.

Figure 4. Anish Kapoor's Descension *offers an aquatic spiral into Jean-Paul Sartre's notions of nothingness and the existential void. It was exhibited at the Galleria Continua, San Gimignano, Italy in 2015. (Photo by Ela Bialkowska © Anish Kapoor)*

The artwork excites the phenomenological sense of unease, anxiety, and nothingness at the heart of existentialist philosophy. As Heidegger maintained: "Uncanniness reveals itself authentically in the basic state-of-mind of anxiety; and in the most elemental way in which thrown Dasein [often translated as 'being there'] is disclosed, it puts Dasein's Being-in-the-world face to face with the 'nothing' of the world" ([1927] 1962:321). The "uncanny nothingness" of *Descension*'s world is intensified by the water's extreme blackness (created using hair dye), which brings to mind Rosalind Krauss's description of modernist sculpture being "experienced more and more as pure negativity [...] a kind of black hole in the space of consciousness" (1979:34) in her influential article "Sculpture in the Expanded Field." In 2014, Kapoor's fascination with "absolute" black extended to his purchase of the exclusive rights to be the only artist able to use the blackest pigment on earth, Vantablack, developed by the British company NanoSystems for stealth satellites, which reflects almost no light at all (Jones 2016).

The technology behind *Descension* is powerful yet relatively simple — described only as a "motor" (Tomazzo Gallina 2015). Nonetheless, its original construction for the 2015 Kochi-Muziris Biennale involved 50 workers digging a large hole for an entire week, and placing within it an autonomous rotary motor system, designed according to the cybernetic principle of circularity. The catalogue description significantly makes references to aspects specific to the paradigms and language of cybernetics, including boundary crossing, auto-generation, perpetual flux, and unknowable outcomes:

Kapoor's objects sit uneasily and have unstable boundaries between interior and exterior, between object and non-object [...] It builds on Kapoor's concern with non-objects and auto-generated form. In the state of flux and motion, *Descension* confronts us with a perpetual force and a downward pull into an unknowable interior. (Tomazzo Gallina 2015)

While by no means the "self-replicating machine" that John von Neumann conceived as the exemplification of "second wave" (also known as "second order" or "new") cybernetics, it is nonetheless a highly recursive cybernetic system whose cycles appear to be self-perpetuating and to have the potential to continue ad infinitum. The swirling vortex is always subtly changing and metamorphosing, its aquatic swirls and splashes never precisely the same from one revolution to the next. While cybernetic systems typically use or incorporate some form of feedback loop, *Descension* is one, in and of itself. It is a self-creating, self-consuming, and continually evolving, centrifugal feedback loop.

Blackness, Authenticity, and the Sublime

The blackness of *Descension*'s water is so intense that it is redolent of the violent "liquid ebony" whirlpool in Edgar Allan
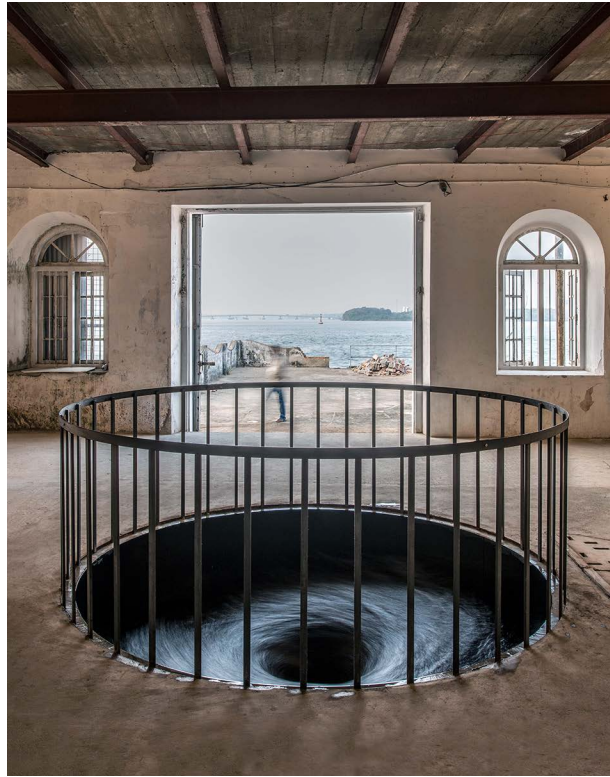

Figure 5. The original iteration of Anish Kapoor's cybernetic black whirlpool, exhibited at the 2014 Kochi-Muziris Biennale, India. (Photo by Dheeraj Thakur © Anish Kapoor)

Poe's "A Descent Into the Maelström" ([1845] 2005–2017). Kapoor's title may or may not be a direct homage to Poe, but its effect is precisely akin to Poe's ecstatic descriptions of the whirlpool that the narrator's boat circles for an hour, gradually moving "nearer and near to its horrible inner edge" and turning his hair from black to white. Kapoor's creation is equally mesmeric, making one become "possessed with the keenest curiosity about the whirl itself. I positively felt a wish to explore its depths, even at the sacrifice I was going to make [... for] the mysteries I should see" (Poe [1845] 2005–2017). So, as with existentialism's viewpoint that contemplation of Being-towards-the-end can confer a type of liberation and transcendence, Poe's contemplation of the descent towards death—and ours when experiencing Kapoor's installation—is simultaneously terrifying, thrilling, and uplifting. As Poe's boat continually circles the "belt" of the whirlpool, it seems to be "flying rather than floating" and he recounts that:

> Never shall I forget the sensations of awe, horror, and admiration with which I gazed about me. [...T]he gleaming and ghastly radiance [...] streamed in a flood of golden glory along the black walls, and far away down into the inmost recesses of the abyss. [...] The general burst of terrific grandeur was all that I beheld [...] a pathway between Time and Eternity. (Poe [1845] 2005–2017)

Poe here describes what Sartre would term an existentialist transcendence and what Heidegger would describe as an authentic experience of temporality—not only while staring in the face of death, but also while encountering the sublime. "Sublime" is a word that has been used by many critics in describing Kapoor's proto-cybernetic vision of Poe's black whirlpool. Jonathan Jones's

headline in the *Guardian* announces "a sublime spectacle from the magician of modern art" and he argues that where artists like the YBAs (Young British Artists) had previously been radical while Kapoor had seemed conservative, now "Hirst is artistically bankrupt and Antony Gormley designs hotel rooms for the mega-rich. [...] But Kapoor is the real thing. [...] Kapoor is authentically creative" (Jones 2015).

His use of the word "authentic" underlines another fundamental pillar of existentialism: the quest for authentic experiences and an authentic existence that pervades this philosophy, from Kierkegaard's "leap of faith" ([1846] 1992) to Nietzsche's concept of the *Ubermensch* ([1885] 2006); and from Marcel's ideas on service towards others (1949), to Heidegger ([1927] 1962) and Sartre's ([1943] 1994) extensive discourses on the subject. Authenticity, whether in life or art, requires courage and originality, and rejection of conventions and from being part of the crowd—as Heidegger put it, from being "lost in the Anyone" ([1927] 1962:435). For Jacob Golomb:

> The most vigorous clash between the will to authenticity and the inauthentic anyone is conducted under the shadow of death. [...A]uthentic *Dasein* is the author of its "own character." The ethos of the anyone is so pervasive that only death can "wrench" one from its domination. [...] Being-towards-death enables one to do this most effectively [...W]e are forced to decide if we are to attain our authentic selves or lose them before the factual event of our dying. [...A]nxiety "liberates" one for authenticity. (Golomb 1995:108–09)

The word "authenticity" has recently made a return to critical discourse after many years in the wilderness, following postmodernism's disbelief in such a concept, and Adorno's brilliantly withering critique of what he called *The Jargon of Authenticity* ([1964] 1973) in Heidegger's philosophy. Jones's judgment on Kapoor's authenticity versus Damien Hirst's inauthenticity is interesting in relation to existentialism's views on the subject, which emphasize that it is a continual quest and struggle: "authentic selves do not exist; there are only certain individuals who carry out authentic acts and live authentic modes of life" (Golomb 1995:54). Using this criteria, I would venture that in some of his early work, Hirst certainly *did* act authentically, as did many of his fellow YBAs in the 1990s. Moreover, many of the most groundbreaking and definitive YBA works were examples of cybernetic-existentialism.

Systems and Circularities of Life and Death

Damien Hirst and the YBAs

Hirst's early sculptures and installations relate closely to existentialist ideas, including his 14-meter-long shark floating in a tank of formaldehyde, the title of which directly echoes Sartre's philosophy: *The Physical Impossibility of Death in the Mind of Someone Living* (1991). While death and its anticipation is a core theme for most existentialist writers, perspectives on it differ. For Heidegger, it marks a moment of ultimate significance since it confirms originality and individuality: "death individualizes [...;] death *is* just one's own" ([1927] 1962:309). But Sartre takes an opposite perspective, emphasizing Hirst's notion of *The Physical Impossibility of Death in the Mind of Someone Living*. As Gary Cox summarizes, Sartre contests that:

> a person does not die her own death because her own death is not an event she can experience [...since] death is the utter annihilation of the point of view that she is. In a very real sense, death only happens to other people. Only the death of other people is an event in my life, just as my death can only be an event in the lives of those who outlive me. (Cox 2011:166)

Hirst's *A Thousand Years* (1990) combines another, even darker existentialist meditation on Being-towards-death, using a cybernetic system within a large glass box divided into two sections. A bloody, severed cow's head lies rotting on the floor and produces maggots, which metamorphose into flies that in turn fly into, and are killed by, an Insect-O-Cutor hanging

Figure 6. The brief cycle of birth, life, and death is actuated within an autonomous cybernetic system where flies hatch out of a bloody cow's head only to meet their fate in an Insect-O-Cutor, in Damien Hirst's A Thousand Years *(1991). (Photo by Roger Wooldridge © Damien Hirst and Science Ltd. All rights reserved, DACS 2016)*

above the cow's head. While exploring mortal themes, Hirst works like a scientist or cybernetician to create "an aesthetic world that is thoroughly systematized and rationalized" (Tomio Koyama Gallery n.d.) and the system itself is classically cybernetic in combining elements from, and crossing boundaries between, the organic and the machinic; and involving a dynamic cycle of evolutions and feedback loops. Though distinctly low-tech, it is nonetheless a perfect example of cybernetic-existentialist art. *A Thousand Years* is an evolving circuitry system and self-regulating organism whose theme and materials confront us not only with a vivid and visceral representation, but also an authentic performance of the brief, wholly absurd, and meaningless cycle of life. This in turn elicits a type of aesthetic horror and existential angst in the inexorable face of death. The existentialist view is that the ultimate effect of this is positive and awakening, and Hirst echoes this perspective in his discussion of *A Thousand Years*: "You can frighten people with death or an idea of their own mortality, or it can actually give them vigour" (in Sooke 2011).

Many of the YBAs made similarly intense and performative proto-existentialist reflections on life, including Tracy Emin's *My Bed* (1999); and on Being-towards-death, such as Marc Quinn's *Self* (1991). Emin's Turner Prize–nominated installation is an unmade bed surrounded by the litter of human experience from condoms and an empty vodka bottle to soiled knickers, which conjures a type of "eroticism of absence," to use a phrase coined by Victor Burgin in relation to another work concerned with "real-life" that was also distinctly cybernetic-existentialist: *Jennicam* (Burgin 2002:229). *My Bed* became proto-cybernetic when members of the public intervened, including two Chinese art students who had a pillow fight; and Christine de Ville, an "outraged" woman who had driven 200 miles from Wales to London to attempt to clean the installation with Vanish brand detergent, but was stopped by gallery attendants (BBC News 1999).

Marc Quinn's *Self* (1991) is a life-size rendering of his head in a Perspex refrigeration unit, constructed with 10 pints of the artist's blood and immersed in frozen silicone. Quinn has made

Figure 7. Every five years since 1991, Marc Quinn has used a refrigeration system, liquid silicone, and 10 pints of his own blood to construct what he describes as "an ongoing self-portrait of the artist's ageing and changing self" (Quinn 2015). Photo of Self *(2006 version). (Courtesy of Marc Quinn and the National Portrait Gallery, London)*

a new iteration every five years since the original 1991 version: "a cumulative index of passing time and an ongoing self-portrait of the artist's ageing and changing self" (Quinn n.d.), and he references a writer strongly associated with existentialism when describing it as "a Beckett version of Rembrandt" (in Fullerton 2014:76). Elizabeth Fullerton notes how it "encapsulates life and death—a memento mori of real matter that could, theoretically, be cloned to make new life" (76).

Equally, of course, the work's power also rests on its evident fragility (when I saw its original 1991 exhibition it appeared to be filled with dents and defects, and falling apart) and the fact that a simple electrical short would destroy it. This eerie blood bust was one of the most original and impactful Being-towards-death expressions of the YBAs, and led to Quinn becoming the first YBA to be signed by Jay Jopling, the director of the White Cube gallery in London. Its existentialist statement was visceral and explicit, while its cybernetic impulses included the crossing of (epidermal) boundaries, synthesizing processes, and a display system that underwent a process of evolution. The first version was beset with problems due to air captured in the chamber, but a solution was developed by freezing the head in liquid silicone—a technique Quinn took further in his series of frozen flower sculptures (since 1998), which, he says, were "made from the same molecules the living plant was made from, but it's no longer alive. [...B]eauty and death go together" (in Fullerton 2014:76).

Michael Landy's *Break Down* (2001) was an ultimate artistic expression of the existential identity crisis, a two-week performance involving the destruction of all his worldly belongings (7,227 items, painstakingly catalogued) including every identity validation from birth certificate to passport. For the process of destruction, he built a complex system of conveyor belts, which Jen Harvie has called a "disassembly line" (2013:91) along which each item traveled, taking 10 minutes to complete its circuit before being pulverized at the end. Landy thus *performs* existentialism's palimpsest-like philosophy of identity whereby there is a continual process of ongoing negation and erasure of the past self in favor of continual regeneration and self-creation through authentic action. "I'm always trying to get rid of myself," says Landy, "so that I can move on. [...It was] a huge rush, I was on cloud 9 [...] I'd negated everything" (Illuminations Media 2008). The experience was so existentially "authentic" and transformative that following this piece, Landy claimed he could see no point in making art, and it was over a year before he resumed. He later reflected that *Break Down* "was the best thing I ever did in my life" (Art Documentaries 2014).

Image, Time, and Anticipation

Scottish artist Douglas Gordon's celebrated *24-Hour Psycho* (1993) is an elevated two-sided screen installation, where Alfred Hitchcock's *Psycho* (1960) plays in slow motion at two frames per second (and thus lasts an entire day), creating an unnerving and hypnotic effect. A similar approach is employed, and a parallel effect elicited, in Singaporean artist Urich Lau's two-channel, large dual screen *Intersection: Video Diptych* (2004), where a disturbingly violent 18-second sequence from Mathieu Kassovitz's 1995 film *La Haine* is slowed down to last 5 minutes. One of the screens plays in forward motion, the other in reverse, and their climactic moments coincide explosively, when a character being threatened with a gun is accidentally shot in the face. The latent menace of the movie footage is mirrored and magnified by the excruciatingly slow (x13) playback speed, which renders the dialogue elongated and incomprehensible.

Both Gordon's and Lau's installations appropriate and repurpose found footage to excite a sense of the inexorable and of the uncanny that transports the original film clips into an entirely new realm. As each still frame gradually replaces the last, the filmic mechanism is revealed, perception becomes disordered, and time seems, simultaneously, ominously omnipresent and achingly absent. Both works accord closely with principles of cybernetic-

Figure 8. *In* Break Down *(2001), Michael Landy encapsulated and performed a classic existential identity crisis and through concrete, authentic action he "negated everything" (Illuminations Media 2008). Using an elaborate conveyor belt system, he ritualistically destroyed every single thing he owned, including his car. (Courtesy of Michael Landy and Thomas Dane Gallery, London)*

existentialism: placing the viewer at the heart of a second wave cybernetic system (where the human subject is inside the system) that prompts visual, cognitive, and psychological disruption through a reversal and negation of Peter Mark Roget's notion of "persistence of vision" (see for example Anderson and Anderson 1993)—which was the title of Lau's 2013 solo exhibition in Singapore. Most significantly, Gordon's and Lau's works not only explore, but concretely *manifest and convey* central existentialist concepts concerning the ontology of time, anticipation, Being-towards-death, and authenticity.

Both artists can be seen as illuminating existentialist philosophy by working with an avowed intent to disturb their audience at a primordial level so as to effect concrete shifts in their
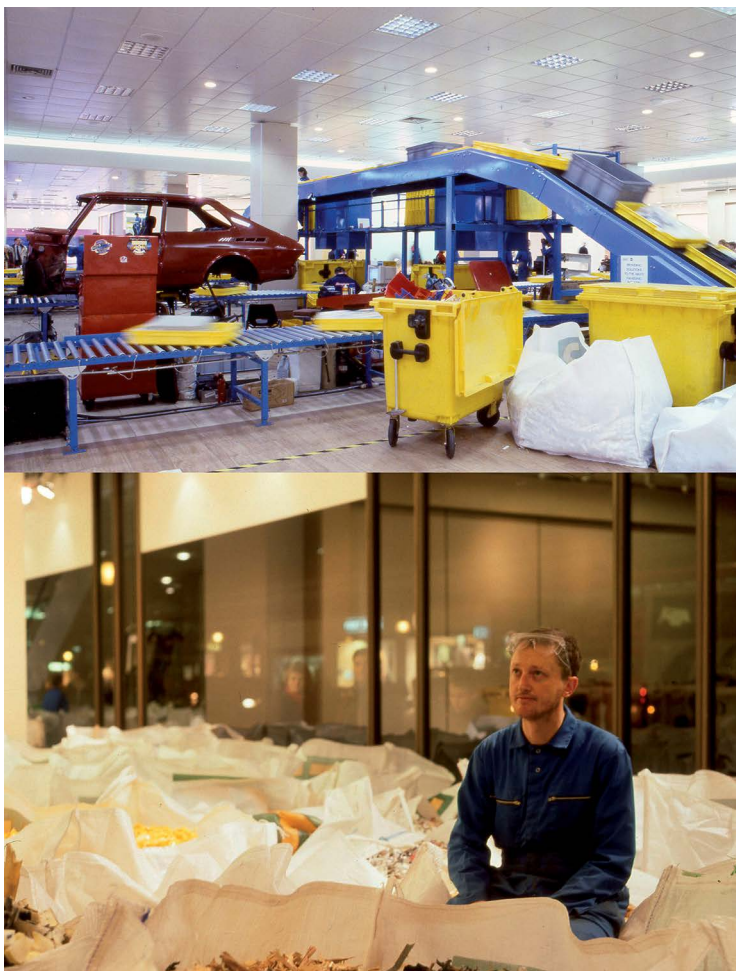
Figures 9 & 10. The intense psychological effects of slowing down found footage from violent movies operate in relation to the principles of "second-wave" cybernetics and also manifest Existentialist concepts of temporality and anticipation of Being-towards-death. Fig. 9: Douglas Gordon's video installation 24-Hour Psycho *(1993) (from* Psycho *[1960] produced and directed by Alfred Hitchcock. Distributed by Paramount Pictures © Universal City Studios. Photo © studio lost but found/Bert Ross). Fig. 10: Urich Lau's video installation* Intersection: Video Diptych *(2004). (Courtesy of Urich Lau)*

perception of time and Dasein. Gordon describes his artworks as "trying to induce a perceptual shift from where you are to where you were or where you might be" (Camhi 1999:144), invoking existentialism's advocacy for continual self-creation and rigorous reflection on a "self" that in order to be authentic must be ever moving and changing. "I'm fascinated by the fact that as a human being you can coexist on various levels simultaneously," he reflects (144).

In *New Philosophy for New Media* (2004), Mark B.N. Hansen reflects on *24-Hour Psycho* in terms of how "Gordon's experimentations with the temporal limits of visual art forces us to confront the origin of temporal consciousness (and hence consciousness per se)" (2004:249). He argues that since filmic images have become the privileged mode of contemporary perception, such artworks produce profound effects through "an eerie experience of protracted anticipation accompanied by a sobering insight into temporal relativity" (243–44). As perception of time is disturbed and each still frame of the movie is slowly progressed and revealed, anticipation is key:

> [T]he viewer quickly finds her attention intensely concentrated on anticipating this moment of change; moreover, as the viewer becomes more and more caught up in the halted progression of this narrative, this process of anticipation becomes ever more affectively charged, to the point of becoming practically unbearable. (244–45)

It is the continual and concentrated nature of this "charging," like a heated electrical element, that triggers its cybernetic effect: connecting and activating a feedback loop between artwork and audience that goes beyond normative image-viewer relationships or traditional reception theories to affect complex shifts and concrete changes within the whole system. These changes occur *within* the viewer (or at least some interested viewers); they are brought about by virtue of new temporal insights and an experience of intense anticipation; and they are both perceptual and existential in nature.

The existentialists discussed anticipation and expectation at length, seeing them as keys to unlocking, understanding and embracing the concept of Being-towards-death, where the contemplation of one's own mortality is seen as the ultimate existential wake up call. Firstly,

such anticipation grounds us in the actual—"in expecting, one leaps away from the possible and gets a foothold in the actual" (Heidegger [1927] 1962:306); and secondly, positively embracing our own finitude is seen as a spur for Dasein to reject any impulse to conform with the crowd, and to instead seek to forge an authentic existence.

Of course, many artworks provide a catalyst or space for a similar type of contemplation, including meditations on death. But the seductive allure of this particular deconstruction and distillation of the technological elements of film projection *in extremis*, coupled with the intense sense of anticipation, renders the (active and engaged) viewer a posthuman cybernetic subject facing her own mortality, and consequently awakened to her own freedom and possibilities. Heiddeger:

> When, by anticipation, one becomes free *for* one's own death, one is liberated from one's lostness [...] and one is liberated in such a way that for the first time one can authentically understand and choose [...] Anticipation discloses to existence that its uttermost possibility lies in giving itself up [...] It guards itself against "becoming too old for victories" (Nietzsche). ([1927] 1962:308)

Sun Yuan and Peng Yu

In Sun Yuan and Peng Yu's 天使 (*Angel*, 2008), a hyperrealistic life-size figure of a white-haired, wrinkled old woman in a white gown lies face down on the ground, apparently dead. From her back sprout large, featherless chicken wings, wholly ineffective for flight. The image is simultaneously grotesque and beautiful, humorous and harrowing. Like many of their works, this "fallen angel" hints at human existential tragedy, where Sartre's complex ideas of transcendence (a major section in *Being and Nothingness* ([1943] 2003) come down to

Figures 11 & 12. Sun Yuan and Peng Yu's eerie and poignant meditation on age, lost hopes, and transcendence, Angel *(2008). The sculpture has been exhibited in different ways in galleries internationally, including as a solitary figure lying face down on the bare floor (fig. 11), and situated within a circular metal and netting installation (fig. 12). (Courtesy of Sun Yuan and Peng Yu)*

earth with a crash. It has a striking pathos and I have seen crowds of gallery visitors spend far longer in contemplation of it than is the norm with contemporary artworks. Like the philosophies of existentialism, it is a meditation on shattered hopes and potentials, and the ontology of time and death which, in Sartre's words, reveals that time is "the shimmer of nothingness on the surface of a strictly a-temporal being" ([1943] 2003:238). It conjoins imagery that derives from Biblical (angel), mythical (Icarus), and sociopolitical sources (this angel is a frail, emaciated

Figure 13. Sun Yuan (left) and Peng Yu (right) shortly after they decided to get married, giving blood to the cadavers of conjoined-twin babies in Body Link *(2000) at the* Bu hezuo fangshi/Fuck Off *exhibition in Shanghai. (Courtesy of Sun Yuan and Peng Yu)*

old woman) to offer a memento mori both bleak and uplifting.

The concern of lost hope and an uncertain future remains a telling theme within Chinese contemporary art, and as Ai Weiwei has put it: "These kinds of days are too short for some people, too long for others. There are too many failed expectations and too much lost hope. ... What kind of future are we walking towards?" (in Merewether 2009:19). But while such meditations on death and the absurd place Sun and Peng's work within the parameters of existentialist philosophy, other aspects, and particularly the use of recursive systems and feedback loops, also anchor it within cybernetic understandings. In their controversial performance 连体婴儿 (*Body Link*, 2000), the two artists were physically connected to the cadavers of two babies through an intravenous drip, with the dead children receiving blood into their systems (Fok 2013); and in 老人院 (*Old Person's Home*, 2007; see Sun and Peng n.d.), on display as part of the London Saatchi gallery's permanent collection for many years, 13 dynamoelectric wheelchairs carrying life-size sculptures of geriatric political leaders (some asleep and drooling) travel apparently randomly around a room, continually bumping into each other.

Communication Theory and Noise

In "Cybernetics and Art" (1969) Michael J. Apter begins by defining three key cybernetic theories: information, control, and automata. The first, information theory (a.k.a. communication theory) was most prominently articulated by Claude Shannon and Warren Weaver in 1949, and its formulation has always been pertinent to arts as a general model of reception theory, whereby artists encode and send their messages, which are received, decoded, and interpreted by audiences. Shannon and Weaver even made reference to arts, noting that information theory is general enough to embrace the transmission of all kinds of messages and symbols "whether written letters or words, or musical notes or spoken words, or symphonic music, or pictures" (1949:23). It involves a linear system, with an information source being encoded and transmitted as a message, which is subject to the influence of "noise" on its path—the only input or variant that comes from outside the linear system diagram. Thereafter, the message reaches a receiver and is decoded at its information destination, and then subject to a feedback loop. To take a simple example, the spoken message from the sender (information source) into a tele-

phone (transmitter) is encoded into wave signals and sent through cables where it is subjected to system "noise," and then decoded at the receiving end, whereupon the receiver may instigate feedback by speaking in reply, which transmits another message back through the system, and the effect is recursive.

In arts and performance practice, it is the dramatically changing nature not of the particular messages, but of the transmission systems and attendant "noise" that are of particular relevance to the aesthetics of cybernetic-existentialism. In online environments, for example, the blessings and complications of hypermediation

Figure 14. A type of malfunctioning cybernetic chaos is enacted as hyper-real, life-size sculptures of close-to-death politicians in wheelchairs continually bump into one another in Sun Yuan and Peng Yu's satirical Old Person's Home *(2007). (Courtesy of Sun Yuan and Peng Yu)*

and instant feedback loops — of blogs, tweets, retweets, "likes," ready opinions, and convergent messages — can turn noise into auras that render messages and artworks toxic, or lauded and viral. Interest in noise has also extended to its role as central content within certain genres of video art and net.art, and across the entire field of glitch art (see Betancourt 2017).

Noise became an increasingly important and central aspect of second order cybernetics in the work of Heinz von Foerster, Gregory Bateson, and Gordon Pask. Moving away from Norbert Wiener's classical "first order" focus on mathematics, physics, and machines, this second order emphasized self-reflexive systems and drew more on models from living organisms and biology. Pask and Gerard de Zeeuw's 1992 discourse (Pask and de Zeeuw 1992) on the cybernetic shift in emphasis reflects pertinent changes of focus also taking place within arts and online culture at that time — moving from information to coupling, from data transmission to conversation, from external observation to active participation, and from Erwin Schrödinger's "order-to-order" ([1944] 1992) to von Foerster's "order-from-noise" (1960). According to Tom Darby, second order cybernetics' main task was also "to overcome entropy by using 'noise' as positive feedback" (1982:220).

Killer Dogs

The system itself is the creative instigator of the noise at the cacophonous and chaotic heart of Sun Yuan and Peng Yu's 犬勿近 (*Dogs That Cannot Touch Each Other*; 2003). For the performance, the artists arranged four pairs of gymnasium treadmills facing each other, just a few centimeters apart. A large sheet of clapboard separated the facing treadmills, down the middle of the space. A live pit bull terrier was placed on each of the eight treadmills and fitted with a special harness and chains that restricted the reach of their noses to very close to the central clapboard, which was then lifted. On suddenly seeing the dog opposite, each one lunged aggressively towards its counterpart and in an extraordinary spectacle of psychotic eyes, snarling teeth, spitting saliva, and deafening barking, these eight killer dogs attempted to attack and destroy the one opposite them. Although the power drives for the treadmills had been disabled, the dogs ran at a ferocious pace on the same spot, circulating the treadmills at furious speeds as they strained, nose-to-nose, within millimeters of each other.

Dogs That Cannot Touch Each Other fuses hot, existential terror with cool, cybernetic "systems thinking." There is a dynamic technological system (the running machines) that is part-open and part-closed (placed slightly apart with exact precision), inputs are introduced (the dogs), there are complications of noise (in this case, literal), there is a resulting output (art in the form of an audiovisual spectacle of terrifying aggression), and a feedback loop is established that is hyperactive and recursive, due to the pit bulls' "fight to the death" instincts. Their commitment is total and the feedback loops continual, sending messages to one another in apparent perpetual motion, or at least up to the point of physical exhaustion or death. Gu Zhenqing has described the dogs as undergoing not a physical fight, but "a contest of the spirit" (Zhenqing 2003).

The literal noise generated through the system is arguably unlike anything ever heard in the history of art. The horrific intensity and violence of the sound of the dogs barking within an enclosed room, their gnashing teeth and running legs, combine eerily with the mechanical clanking of two sets (and rhythms) of chains—from the circulating treadmill mechanisms and from those affixing their body harnesses to the top beam of the running machines. The effect is ear piercing and unforgettable, offering a whole new perspective on the concept of "The Art of Noises," first mooted by Luigi Russolo and the Futurists in a 1913 manifesto ([1913] 2005).

It is a traumatic performance of aesthetic aggression that is quintessentially cybernetic, combining precise measurements and scientific controls with unpredictable internal forces and external noise, which in turn renders it evolutionary and thus potentially out of control. It speaks to the unpredictability and fragility of life, and the way that it can turn in a single moment (as the clapboard is lifted) from calm to chaos, from peace to war, and from life to death. The messages it sends are not only loud but multiple, and can be decoded by the receiver in relation to myriad existential "meanings," from life being an absurd treadmill to the impotence of humans who continually run towards but are forever unable to reach what they seek. Above all, it presents a moment of Being-towards-death with such explosive originality and visceral impact that it excites and awakens true existential angst and fear.

Conclusion

Unknowability, Performativity, and Possible Impossibilities

The projects of cyberneticians such as Stafford Beer can be understood as:

> specific instantiations and workings out of a cybernetic ontology of unknowability and becoming: a stance that recognises that the world can always surprise us and that we can never dominate it through knowledge. The thrust of Beer's work was, thus, to construct systems that could adapt performatively to environments they could not fully control. (Pickering 2004:499)

Parallel themes run throughout the philosophy of existentialism, where "unknowability" equates with Nothingness, where "becoming" is perpetual (since self and identity are never fixed), where life is continually "adaptive" and "performative" (through Being-with-others and Being-for-others), and where we exist in a context we can never "fully control" since we are always-already Being-towards-death.

Heidegger maintained that the more intensely we contemplate the reality of our impending death "as the possibility of the impossibility" ([1927] 1962:307) the more death becomes a *positive* destination. It acts, he argues, as a catalyst to draw us away from being lost in the mediocrity of the everyday and the conformity of the crowd (the "they") and to spur us on towards individual freedom, since death becomes "Dasein's *ownmost* possibility" (307):

> We may now summarize our characterization of authentic Being-towards-death as we have projected it existentially: *anticipation reveals to Dasein its lostness in the they-self, and brings it face to face with the possibility of being itself … in an impassioned* freedom towards

death—*a freedom which has been released from the Illusions of the "they," and is factical, certain of itself, and anxious*. (311)

Manifestations of the converging ideas of what I term cybernetic-existentialism are not only evident within, but also *central to* many contemporary artworks and performances. Indeed, cybernetic-existentialism is a defining aspect of some of the most groundbreaking and critically acclaimed art by Abramović, Kapoor, Hirst, Quinn, Landy, Gordon, Lau, Sun, and Peng. Different systems theories and cybernetic paradigms are integral to their works, which are, to quote Jack Burnham's influential 1968 text "Systems Esthetics": "in transition from an *object-oriented* to a *systems-oriented culture*. Here change emanates not from *things*, but from the *way things are done*" (1968:24).

These artists' explorations of the notion of Being-towards-death are novel and efficacious, exciting an anticipation of death in their audiences, which leads to the types of feelings of anxiety, nausea, and vertigo that existentialists see as revelatory, and that wake us up:

to the dizzying formlessness and groundlessness of our existence, an experience which provokes anxiety [...T]he only possible meaning a life has is that given by living it, and therefore the challenge to live authentically is the highest human challenge. (Moran 2000:362)

References

Adorno, Theodor. (1964) 1973 *The Jargon of Authenticity*. London: Routledge & Kegan Paul.

Anderson, Joseph, and Barbara Anderson. 1993. "The Myth of Persistence of Vision Revisited." *Journal of Film and Video* 45, 1:3–12.

Apter, Michael J. 1969. "Cybernetics and Art." *Leonardo* 2, 3:257–65.

Art Documentaries. 2014. "1/2 Michael Landy—What Do Artists Do All Day ?" YouTube, 29 October. Accessed 16 November 2015. https://www.youtube.com/watch?v=6EqVPZwiT5Q.

Bateson, Gregory. 1972. *Steps to an Ecology of Mind*. Chicago: University of Chicago Press.

BBC News. 1999. "Housewife 'Outraged' by Dirty Bed Exhibit." 25 October. Accessed 19 November 2015. http://news.bbc.co.uk/2/hi/uk_news/wales/485270.stm.

Beauvoir, Simone de. (1947) 2000. "Ambiguity and Freedom." In *The Existentialist Reader*, edited by Paul S. MacDonald, 277–93. Edinburgh: Edinburgh University Press.

Beer, Stafford. 1959. *Cybernetics and Management*. London: English Universities Press.

Betancourt, Michael. 2017. *Glitch Art in Theory and Practice: Critical Failures and Post-Digital Aesthetics*. London: Routledge.

Bishop, Claire. 2004. "Antagonism and Relational Aesthetics." *October* 110:51–79.

Bourriaud, Nicholas. (1998) 2002. *Relational Aesthetics*. Translated by Simon Pleasance and Fronza Woods. Paris: Les Presses du Réel.

Burgin, Victor. 2002. "Jenni's Room: Exhibitionism and Solitude." In *CTRL [SPACE]: Rhetorics of Surveillance from Bentham to Big Brother*, edited by Thomas Y. Levin, Ursula Frohne, and Peter Weibel, 228–35. Karlsruhe: ZKM Center for Art and Media; and Cambridge: The MIT Press.

Burnham, Jack. 1968. "Systems Esthetics." *Artforum*, September:30–35. Accessed 3 October 2016. https://monoskop.org/images/0/03/Burnham_Jack_1968_Systems_Esthetics_Artforum.pdf.

Camhi, Leslie. 1999. "Very Visible ... and Impossible to Find." *ARTNews*, Summer:144.

Camus, Albert. (1942) 1991. *The Myth of Sisyphus and Other Essays*. New York: Vintage Books.

Cox, Gary. 2011. *The Existentialist's Guide to Death, the Universe and Nothingness*. London: Bloomsbury.

Darby, Tom. 1982. *The Feast: Meditations on Politics and Time*. Toronto: University of Toronto Press.

Dixon, Steve. 2016. "Cybernetic-Existentialism." *International Journal of Performance Arts and Digital Media* 12, 1:11–30.

Fok, Silvia. 2013. *Life and Death: Art and the Body in Contemporary China*. Bristol: Intellect Press.

Foley, Michael. 2010. *The Age of Absurdity: Why Modern Life Makes it Hard to be Happy*. London: Simon & Schuster.

Fullerton, Elizabeth. 2014. "'Self' in the Age of Selfies." *ARTNews*, May:76. Accessed 6 March 2017. http://www.artnews.com/2014/05/12/marc-quinn-as-middle-aged-young-british-artist/.

Golomb, Jacob. 1995. *In Search of Authenticity: From Kierkegaard to Camus*. London: Routledge.

Hansen, Mark B.N. 2004. *New Philosophy for New Media*. Cambridge: The MIT Press.

Harvie, Jen. 2013. *Fair Play: Art, Performance and Neoliberalism*. Basingstoke: Palgrave Macmillan.

Heidegger, Martin. (1927) 1962. *Being and Time*. Translated by John Macquarrie and Edward Robinson. Oxford: Blackwell.

Illuminations Media. 2008. "theEYE—Michael Landy—Break Down." YouTube, 14 March. Accessed 5 October 2014. www.youtube.com/watch?gl=SG&hl=en-GB&v=6hYUnkW4sNA.

Jaspers, Karl. (1935) 1955. *Reason and Existenz*. Translated by William Earle. New York: Noonday Press.

Jobson, Christopher. 2015. "Anish Kapoor's Perpetual Black Water Whirlpool Installed in the Floor of a Former Movie Theater in Italy." *Colossal*, 24 May. Accessed 7 March 2016. www.thisiscolossal.com/2015/05/anish-kapoor-decension.

Jones, Jonathan. 2015. "Kapoor's bottomless whirlpool: a sublime spectacle from the magician of modern art." *The Guardian*, 12 February. Accessed 9 October 2016. www.theguardian.com/artanddesign/jonathanjonesblog/2015/feb/12/anish-kapoor-bottomless-whirlpool-installation.

Jones, Jonathan. 2016. "Can an artist ever really own a colour?" *The Guardian*, 29 February. Accessed 7 March 2016. https://www.theguardian.com/artanddesign/shortcuts/2016/feb/29/anish-kapoor-vantablack-paint.

Kierkegaard, Søren. (1843) 1986. *Fear and Trembling*. Translated by Alastair Hannay. London: Penguin Classics.

Kierkegaard, Søren. (1846) 1992. *Concluding Unscientific Postscript to Philosophical Fragments, Volume 1 (Kierkegaard's Writings, Vol 12.1)*. Translated by Howard V. Hong and Edna H. Hong. Princeton, NJ: Princeton University Press.

Krauss, Rosalind. 1979. "Sculpture in the Expanded Field." *October* 8:30–44.

Marcel, Gabriel. 1949. *Being and Having*. Translated by Katharine Farrer. Westminster, UK: Dacre Press.

Marina Abramović Institute (MAI). 2013. "Marina Abramović on *Rhythm 0* (1974)." Vimeo. Accessed 11 November 2015. https://vimeo.com/71952791.

McCulloch, Warren. 1945. "A Heterarchy of Values Determined by the Topology of Nervous Nets." *Bulletin of Mathematical Biophysics* 7, 2:89–93.

Merewether, Charles. 2009. *Ai Weiwei: Under Construction*. Kensington, Australia: University of New South Wales Press.

Merleau-Ponty, Maurice. (1945) 2002. *Phenomenology of Perception*. Translated by Colin Smith. London: Routledge.

Moran, Dermot. 2000. *Introduction to Phenomenology*. London: Routledge.

Nietzsche, Friedrich. (1885) 2006. *Thus Spoke Zarathustra*. Translated by Adrian Del Caro. Cambridge: Cambridge University Press.

Nietzsche, Friedrich. (1887) 1996. *On the Genealogy of Morals: A Polemic*. Translated by Douglas Smith. Oxford: Oxford University Press.

Pask, Gordon, and Gerard de Zeeuw. 1992. *Interactions of Actors, Theory and Some Applications*. Amsterdam: OOC/CICT/Universiteit Amsterdam.

Pickering, Andrew. 2004. "The science of the unknowable: Stafford Beer's cybernetic informatics." *Kybernetes* 33, 3/4:499–521.

Pickering, Andrew. 2010. *The Cybernetic Brain: Sketches of Another Future*. Chicago: University of Chicago Press.

Poe, Edgar Allan. (1845) 2005–2017. "A Descent Into the Maelström." PoeStories.com. Accessed 25 August 2015. http://poestories.com/read/descent.

Priest, Stephen. 2000. "Sartre in the World." In *Jean-Paul Sartre: Basic Writings*, edited by Stephen Priest, 1–19. London: Routledge.

Quinn, Marc. n.d. "The Making of Self." marcquinn.com. Accessed 5 January 2015. http://marcquinn.com/studio/studio-diaries/the-making-of-self.

Reynolds, Jack. 2006. *Understanding Existentialism*. Stocksfield, UK: Acumen Publishing.

Russolo, Luigi. (1913) 2005. *The Art of Noises*. New York: Pendragon Press.

Sartre, Jean-Paul. (1943) 1994. *Being and Nothingness*. Translated by Hazel Barnes. London: Routledge.

Sartre, Jean-Paul. (1943) 2003. *Being and Nothingness*. Translated by Hazel Barnes. London: Routledge.

Sartre, Jean-Paul. (1949) 1963. *Iron in the Soul*. Translated by G. Hopkins. Harmondsworth: Penguin.

Schrödinger, Erwin. (1944) 1992. *What is Life?* Cambridge: Cambridge University Press.

Shannon, Claude E., and Warren Weaver. 1949. *The Mathematical Theory of Communication*. Urbana: University of Illinois Press.

Sooke, Alastair. 2011. "Damien Hirst: 'We're here for a good time, not a long time.'" *The Telegraph*, 8 January. Accessed 25 August 2016. www.telegraph.co.uk/culture/art/art-features/8245906/Damien-Hirst-Were-here-for-a-good-time-not-a-long-time.html.

Stelarc. 1984. "Strategies and Trajectories." In *Obsolete Body/Suspensions/Stelarc*, edited by James D. Paffrath with Stelarc, 76. Davis, CA: JP Publications.

Sun Yuan, and Peng Yu. n.d. "Works." Accessed 25 April 2017. www.sunyuanpengyu.com/works/all.html.

Tomazzo Gallina. 2015. "anish kapoor descension." YouTube, 5 February. Accessed 10 November 2015. www.youtube.com/watch?v=jfLHz60cqeA.

Tomio Koyama Gallery. n.d. Damien Hirst: Prints. Accessed 25 September 2016. www.hikarie8.com/artgallery/2016/02/damienhirst.shtml.

von Foerster, Heinz. 1960. "On Self-Organizing Systems and their Environments." In *Self-Organizing Systems*, edited by Marshall C. Yovits and Scott Cameron, 31–50. New York: Pergamon.

Wiener, Norbert. 1948. *Cybernetics: or, Control and Communication in the Animal and the Machine*. New York: John Wiley & Sons, Inc.

Zhenqing, Gu. 2003. "Dogs Which Cannot Touch Each Other." sunyuanpengyu.com. Accessed 17 October 2015. www.sunyuanpengyu.com/article/2003/1.html.