

Ribas, João, "After Effects: Art and Technology, Then and Now," *Mousse*, October-November 2013.

MOUSSE 40 ~ Talking About



AFTER EFFECTS: ART AND TECHNOLOGY, THEN AND NOW

BY JOÃO RIBAS

The advanced technologies that inspired postwar artists have now evolved to fit in the palm of your hand. With the widespread expansion of information networks in the late 20th century, digital and mobile media have come to play a signal and infrastructural role in everyday life. Yet the effects of this digital revolution were at the core of the intersections between art and technology in the 1960s and 1970s. Is the legacy of these practices reflected in the digitization of contemporary art? The impact of digital technology on contemporary art, as João Ribas proposes, reaches far beyond art forms that deal explicitly with the technological. The economic, biological, and geopolitical "after effects" of the digital revolution take the form of evolving connections between bits and atoms.



Top - Ian Cheng, still from *Entropy Wrangler Acamar*, 2013

Bottom - Ian Cheng, still from *Thousand Islands Thousand Laws*, 2013

The relationship between art and technology that confronts today's artistic practices has filled the pages of both online and print media in the last year, accompanied by an increasing number of exhibitions that attempt, in divergent ways, to articulate the impact of digitalization on contemporary art.¹ Set off by a growing corpus theorizing a supposed "post-Internet" condition,² this conversation has centered on the art world's ambivalence toward the digital,³ as well as the impact of such technology on practices, bodies and minds, and so far beyond forms of art that deal explicitly with the technological.⁴ What has emerged from this extended inquiry into the aesthetic, social and affective conditions of digital technology is a historical blind spot: the legacy of the art and technology movements of the 1960s and 1970s, in which many of the themes and critiques of today's technological condition were rehearsed, is barely acknowledged. As a result, the genealogy of recent practices has been constructed to intersect with a variety of precedents, from conceptualism—giving them a canonical historical origin—to a *sui generis* emergence from within the explosion of consumer-grade technologies in the 1990s. The origin of today's interactions between art and technics therefore lies between the dematerialization of the art object and its immaterialization through the digital.

The recent Venice Biennale, for example, short-circuited this historical rupture by setting work from the 1960s and 1970s, by artists such as Stan VanDerBeek and Otto Piene, alongside the recent work of artists like Helen Marten, Simon Denny and Ed Atkins. While eliding particular differences and critical debates, such a leveling nevertheless suggests the relation of these two historical moments of intersection between cultural production and the impact of information technologies. As earlier forms of technologically inflected art sought to ameliorate the effects of technological change—both on the perceptive apparatus and on society—much of today's practice confronts data flows as our contemporary sublime, the ontologies of informational space, and the myriad biological and social effects of the interfaces and decentralized networks that shape daily life.⁵

Yet the effects of such contemporary hypnomenata—the forms of exteriorization of memory and knowledge⁶—were at the core of the intersections between art and technology in the 1960s and 1970s. This included the naturalizing of cognitive and biological demands made by the computerization of knowledge. Is the legacy of these practices reflected in the "post-Internet" condition of contemporary art? Recent artistic practices are of course informed, and afforded by, the specificity of the digital. With the widespread expansion of information networks since the late 20th century, digital and mobile media have come to play a signal and infrastructural in everyday life.⁷ Daily life is pervaded by emails, text messages, IMs, Skype calls, screen-based distractions and social networking updates.⁸ This mediation presents a new set of relations between social, biological and political realities that are arguably still not entirely addressed or understood within contemporary artistic practices.⁹ Yet such practices also continue an ongoing dialectical relation of technology to culture, while in many ways perpetuating a set of historical failures.

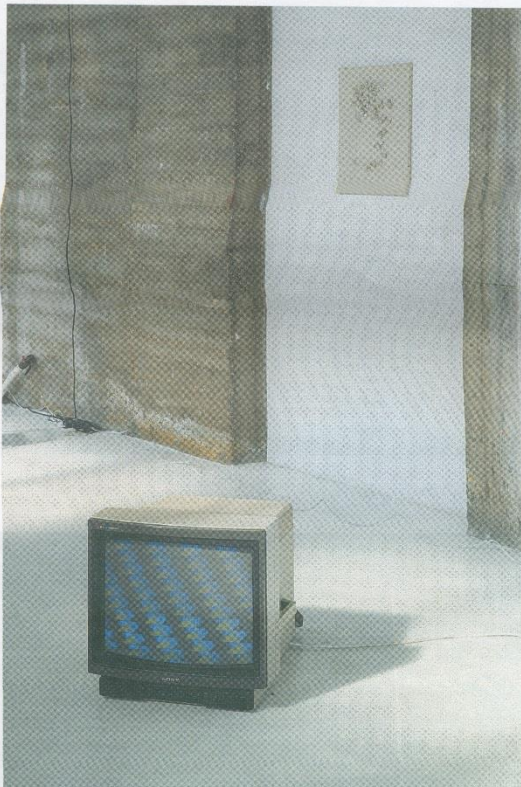
In the 1960s, novel interactions between art and technology provided artists with unparalleled access to the emergent technologies of the coming third industrial revolution. As multi-disciplinary tendencies in postwar art converged with the technological innovation afforded by the Cold War, new forms of artistic practice relied on the increasing collaboration between artists and engineers, as well as the intervention of artists in the realms of science and industry—from the physics laboratory to the coalmine. The fostering of such collaboration paired artists with technologies whose creative potential was still largely undeveloped, yet which necessitated the rarefied expertise and resources of corporations, universities and research centers, including Experiments in Art and Technology, MIT's Center for Advanced Visual Studies, LACMA's Art and Technology Program, and Bell Laboratories.¹⁰ The resulting artistic production continued a technological fascination found in the earlier art of the century,¹¹ with a new urgency driven by the horrors of total war and the rapid social and economic transformations of a post-industrial economy. As Maurice Tuchman wrote of the LACMA program:

"[M]uch of the most compelling art since 1910 has depended on the materials and processes of technology, and has increasingly assimilated scientific and industrial advances. Nevertheless, only in isolated circumstances have artists been able to carry out their ideas or even initiate projects due to the lack of an operative relationship with corporate facilities..."¹²

The art produced from within these new collaborative frameworks was in fact critiqued for its "sheen of ideology" and corporate origins.¹³ With the widely perceived "failure" of the Art and Technology exhibition at LACMA in 1971 due to foundered projects,¹⁴ and the perceived association between these new

technologies and the Vietnam War, art and technology was effectively discredited as a particular tendency, as Branden Joseph has argued.¹⁵

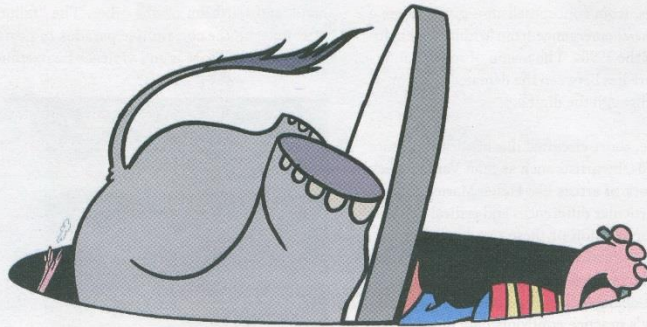
The perceived failure of such artistic practices itself provided an interesting irony, however. Failure had been built into the redundancy of the system. What mattered in such collaborations was the process of experimentation itself, not any final artistic product.¹⁶ As Billy Kliver, co-founder of Experiments in Art and Technology, explained, "All the projects that I have worked on have at least one thing in common: from an engineer's point of view they are ridiculous. That is their value."¹⁷ Yet one of the central critiques leveled at such practices was their failure to differentiate the relevance or urgency of the technologies employed from an actual engagement with the effects of technological developments on society.¹⁸ It is a difference that accounts for skepticism on the one hand, and fetishism on the other. The "failure" of such art ultimately rested, of course, on the constitutive paradox of postwar technology: how could technologies linked to war and violence be redefined through their use in art?



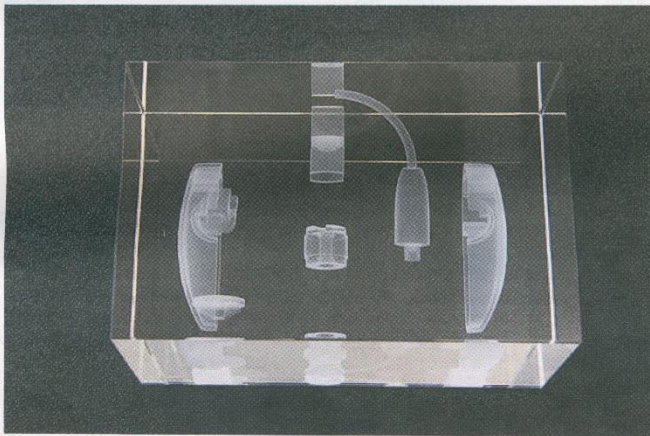
Amalia Ulman and Rhys Coren, "Guide to the Galaxy" exhibition view, Gloria Maria Gallery, Milan, 2013. Courtesy: Gloria Maria Gallery, Milan

The attempt to do so grounded the ethical project of art and technology in the 1960s and 1970s: "humanizing" science. As an "inquiry on the materials and/or concepts of technology and science," such art sought to challenge, in the words of Edward Shanken, "systems of knowledge (and the technologically mediated modes of knowing) that structure scientific methods and conventional aesthetic values."¹⁹ Part of this entailed defining the position of the artist within the technocratic society Marcuse described.²⁰ Much of the technologically grounded art of the time, its distinctions and politics still debated today, seemed sustained by a perceived potential for social, cognitive, or metaphysical transformation in technology itself (against its alienating proliferation). Or perhaps merely by a supposed ability, or a desperate need, to mitigate the consequences of technological change. Technology was, in short, a pharmacological thing; what wounded, also cured.²¹

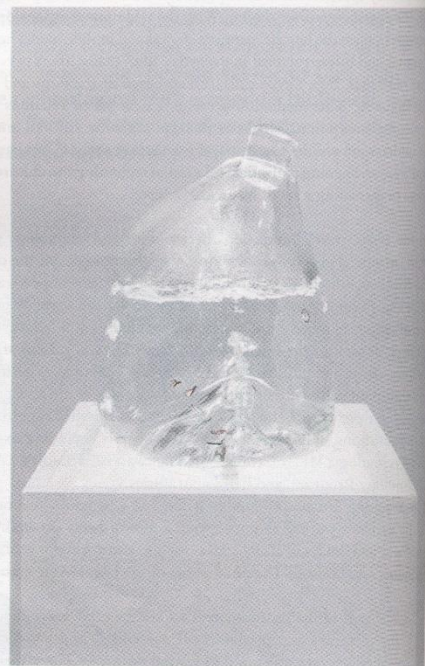
Providing a further interesting parallel to today's conversations around contemporary art and the digital, such art was taken to task for not clarifying the



(A)



(B)



(C)

- (A) Jordan Wolfson, *Raspberry Poser*, 2012. Courtesy: T293, Naples/Rome
(B) Aaron Flynt Jamison, *He Is Risen/Plastikman's Sternum*, 2012. Collection: Sophie Desbordes, Paris. Courtesy: Air de Paris, Paris. Photo: Marc Damage
(C) Anicka Yi, *The Possibility of an Island II*, 2012. © 2012 SculptureCenter, New York and the artist. Photos: Jason Mandella
(D) Stan Vanderbeek, *Panels for the Wall of the World*, 1967, installation view, Gwangju Art Biennale, 2010
(E) Jacolby Satterwhite, *Reifying Desire 5* (detail), 2013. Courtesy: the artist



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(D)



(E)



Ruth Proctor, *Car Drawing*, from the show "Bold Tendencies",
2011. Courtesy: the artist and Norma Mangione Gallery, Turin

conditions of technology itself. If it moved, blinked or beeped, it was technological; yet the essence of technology somehow remained vaguely out of reach. This functioned to diminish the gain: whatever insight technology might afford aesthetic experience was lost in a mechanistic whirl of spectacle, while art grafted onto itself, for relevance, the insipid shininess of the new (from lasers to cybernetics). The response was measured by degrees of technophilic euphoria or critical disavowal.

The advanced information technologies nascent in the 1960s have now evolved to fit into the palm of our hand, no longer requiring mediation to assert their productive potential. Today's digitization of contemporary art—which includes, as Louis Doulas points out, the “digitization and decentralization of all contemporary art via the internet”²²—relies almost exclusively on consumer grade technology for its production and dissemination. As a result, contemporary art is primarily concerned with consumptive effects: on attention (and thus entailing a performance-enhancing regime); on the body (as a public health issue or operations of biopower); and on forms of socialization.²³ Or rather, the productive conditions that underlie it are largely represented as those of a particular “cognitariat”—a great Gramscian intellectual mass²⁴—as in the discussion around the processes of capital that mobilize affect and sociability into the sphere of work. Under a process of real subsumption:

“affects and feelings, linguistic abilities, modes of cooperation, forms of knowledge, expressions of desire: all these are appropriated and turned into sources of surplus value... this means that labor, subjectivity, and social life are no longer ‘outside’ capital and antagonistic to it. Rather, they are immediately produced as parts of it.”²⁵

The resulting new forms of precarious and flexible labor require the cognitive effort to “socially produce,” a process that “in turn dissolves the mathematical measurement of labor time and value,” in Franco “Bifo” Berardi's description.²⁶ If “industrial exploitation deals with bodies, muscles and arms,” post-Fordist production “takes the mind, language and creativity as its primary tools for the production of value.”²⁷ “Exploitation,” as he writes, “is exerted essentially on the semiotic flux produced by human time at work.”²⁸ Yet while cyberspace is a network that is continuously expanded and accelerated, proceeding at superhuman speeds, *cybertime*, as he explains, is not.²⁹ The latter is “essentially lived reality, linked to an organic support (the human body and brain).”³⁰ Its limits are “connected with the intensity of experience that the conscious organism dedicates to the elaboration of information coming from cyberspace,” and so “cannot go faster than what is allowed by the physical material from which our brain is made, or the slowness of our body, the need for caresses and affection.”³¹

There are, of course, other bodies. The elision of production that grounds many discussions of the digital extends in particular to the modes that support the mystification of immateriality. This serves to obscure the cost to the bodies that produce the interfaces of the digital revolution, as Harry Sanderson has aptly pointed out.³² For example, the N-Hexane that is used in the manufacturing of touchscreens is a highly toxic chemical widely reported to cause blindness and nerve damage in the arms and hands of workers through contact or inhalation.³³ The infrastructure of the digital largely involves vast amounts of labor, power and raw material to support it—mobile technology and cloud architecture in particular—even as these are increasingly subject to disregard or deinvestment. On the one hand, the “hyperindustrial stage” of the exteriorization of memory that the digital represents, as Bernard Stiegler explains, creates a proletarianization in which it is “the consumer who is deprived of his memory and knowledge.”³⁴ On the other, people now die “to improve the sharpness of a film.”³⁵

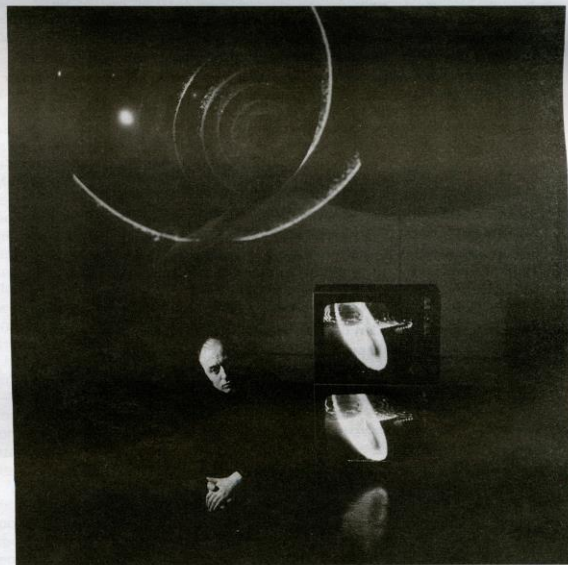
Where the use of technology in artistic practices once relied on expertise, is the only requirement now merely being a subject of “semicapital,” with all the network dependencies this implies? To be a monad in the swarming digital Maoism of the collective think?³⁶ Is there any form of production that does not bear the effects of an encounter with the digital?

Contemporary practices have precisely failed to address digital technology “as a repertoire of practices and effects that increasingly lodges capitalism within the body,” as Claire Bishop contends.³⁷ “While many artists use digital technology,” she writes in a manner reminiscent of the critique of the practices of the 1960s and 1970s, “how many really confront the question of what it means to think, see, and filter affect through the digital?”³⁸ As a result, “the appearance and content of contemporary art” has been “curiously unresponsive to the total upheaval in our labor and leisure inaugurated by the digital revolution.”³⁹ This even as “the digital is, on a deep level, the shaping condition—even the structuring paradox—that determines artistic decisions to work with certain formats and media.”⁴⁰

Rather than a paradox, perhaps a constitutive relation: such a condition stems from the fact, already proposed by Heidegger in the late 1940s, that the essence of technology is not technological.⁴¹ Put another way, as N. Katherine Hayles asserts, “even though information provides the basis for much of contemporary society, it is never present in itself.”⁴² The digital is perhaps better known today through a series of effects to be found IRL. Algorithms can move mountains: Spread Networks, “a privately owned telecommunications provider,”⁴³ blasted a 825-mile path from New York to Chicago by dynamiting through mountains, in order to place high-speed fiber optic cable used for financial transactions.⁴⁴ This “Dark Fiber service” amounted to a “100 microsecond improvement from Spread's previous 13.1 millisecond offering.”⁴⁵

The impact of digital technology is felt as much in these hollowed out mountains as in data crashes and garbage piles, and with the contemporary return of objects and ecology. The economic, biological and geopolitical “after effects” of the digital revolution take the form, then, of technological initiatives that mitigate these IRL effects, including reliable safe water systems; health initiatives to combat the deleterious results of rare earth mining; ADHD medication and energy drinks; carbon emissions taxes; or legal platforms that seek to address invasions of digital privacy. These connections between bits and atoms are only set to further increase within the evolving “Internet of Things,” or “the use of sensors, actuators, and data communications technology built into physical objects—from roadways to pacemakers—that enable those objects to be tracked, coordinated, or controlled across a data network.”⁴⁶

The resulting changes to contemporary art, including its circulation and distribution as it becomes increasingly experienced or discovered online or on smartphones, is evident in the ontology of transitional states that result.⁴⁷ Within a network space of mutable digital materials, the work of art is subject to the lack of a fixed state. As Artie Vierkant writes:



Aldo Tambellini, *Simultaneous Tv Environment*, 1968. © the artist. Courtesy: James Cohan Gallery, New York/Shanghai. Photo: Rodriguez Ruspoli

“In the Post-Internet climate, it is assumed that the work of art lies equally in the version of the object one would encounter at a gallery or museum, the images and other representations disseminated through the Internet and print publications, bootleg images of the object or its representations, and variations on any of these as edited and recontextualized by any other author.”⁴⁸

This condition is seen to extend to everything, “as everything is anything else,” objects now existing “in flux between multiple instantiations.” The digital turns any threshold between organic and inorganic, thing and code, information and metabolism,⁴⁹ into a set of transitional states of exchange—the conservation of information. While data is taken from “everything we feel, think, and do,” Steven Shaviro explains, “financial derivatives,” for example, “float in a hyperspace of pure contingency, free of indexical relation to any ‘underlying’ whatsoever.”⁵⁰ Coming to terms with such states perhaps means becoming attuned to the accidents,⁵¹ slippages, and cross-hatches⁵² that result: from the sublimity of big data to 3D printed human organs.

1. See Claire Bishop, *Digital Divide*, Artforum, September, 2012, <http://artforum.com/inprint/id=31944>; Lauren Cornell and Brian Droitcour, *Technical Difficulties*, Artforum, January, 2013; Paul Teasdale, "Net Gains," Frieze Issue 153, March 2013, <http://www.frieze.com/issue/article/net-gains/>; and Michael Sanchez, "2011: Art and Transmission," Artforum, Summer 2013, <http://artforum.com/inprint/id=41241>
2. Recent examples of such exhibitions include *The Instability of the Image*, Paradise Row, London, July 19-September 12, 2013; *Out of Memory*, Marianne Boesky Gallery, New York, April 18-May 18, 2013; *Repeat Pattern*, The Composing Rooms, London, March 28-April 20, 2013. Two exhibitions, *The Greater Cloud*, at the Netherlands Media Art Institute, December 10-February 5, 2011, and *Free*, at the New Museum, New York, October 20, 2010 - January 23, 2011, set important precedents for such exhibitions.
3. As Artie Vierkant writes, "Post-Internet Art" is a term coined by artist Marisa Olson and developed further by writer Gene McHugh in the critical blog "Post Internet" during its activity between December 2009 and September 2010. Under McHugh's definition, it concerns "art responding to [a condition] described as 'Post Internet'—when the Internet is less a novelty and more a banality. Perhaps ... closer to what Guthrie Lonergan described as 'Internet Aware'—or when the photo of the art object is more widely dispersed [&] viewed than the object itself." There are also several references to the idea of "post-net culture" in the writings of Lev Manovich as early as 2001. The term, as Vierkant explains, applies "to a larger societal relation to technology and the network." Artie Vierkant, *The Image Object Post-Internet*, <http://www.artlurker.com/wp-content/uploads/2011/03/image-object-postinternet.pdf>
4. Teasdale, "Net Gains," <http://www.frieze.com/issue/article/net-gains/>
5. As Louis Douglas has written, the term does not refer to art that is "strictly computer/Internet based, but rather, can be identified as any type of art that is in some way influenced by the Internet and digital media." See Louis Douglas, *Within Post-Internet, Part One* <http://pooool.info/within-post-internet-part-1/>
6. See Alexander Galloway, *The Interface Effect* (Boston; Polity, 2012)
7. Bernard Stiegler, "Anamnesis and Hypomnesis," blog.lib.umn.edu/cherbuli/frenchgrads/Anamnesis%20Hypomnesis.docx
8. As Michael Sanchez writes, "the radically increasing accessibility of the network and the permeation of portable devices on which dramatically higher levels of visual information are at hand" are particular to our historical moment. Sanchez, "2011: Art and Transmission."
9. "Patrick Jagoda on The Interface Effect," Los Angeles Review of Books, <http://lareviewofbooks.org/review/the-next-level-alexander-r-galloways-the-interface-effect/>
10. This is partly Bishop's contention in "Digital Divide," Artforum, September, 2012, <http://artforum.com/inprint/id=31944>
11. These initiatives, while sharing similar concerns and technologies, had of course very different methodologies and perspectives. As Branden Joseph writes, Billy Klüver, co-founder of Experiments in Art and Technology in 1966, was "opposed to György Kepes and his associates at MIT," for example, as he thought they "subordinated technology's potentials to an academic standard of beauty." See Joseph, "Engineering Marvel," Artforum, March 2004, accessed online
12. Branden Joseph, "Engineering Marvel." See also Maurice Tuchman, "Introduction," and Jane Livingston, "Thoughts on Art and Technology," in *A Report on the Art and Technology Program of the Los Angeles County Museum of Art*, http://www.lacma.org/sites/all/themes/custom/lacma/reading_room/A_Report_on_the_Art_and_Technology_Program_of_the_Los_Angeles_County_Museum_of_Art_1967_8211_1971.html
13. Tuchman, "Introduction," in *A Report on the Art and Technology Program of the Los Angeles County Museum of Art*, 11.
14. Joseph, "Engineering Marvel"
15. "The show, on view at LACMA from May 16 to August 29, 1971, was almost a by-product, and not the initial goal, of the project developed by the museum's staff beginning in 1967, when senior curator of modern art Maurice Tuchman posed these questions: What if artists had access to the materials, expertise, and manufacturing processes of the day's most advanced technologies? What if they were free to experiment with these materials and processes, and what if they could collaborate with the engineers and corporations who had developed them?"... "Of the twenty-three collaborations that had been approved to go forward, the work of fifteen artists appeared in the LACMA exhibition. The other projects founded: the proposals were not feasible, collaborations failed, or artists' interests drew them elsewhere." <http://prehysterics.blogspot.com/2008/12/art-and-technology-program-1967-1971.html>
16. Joseph, "Engineering Marvel"
17. Ibid and Stephen Wilson, "Computer Art: Artificial Intelligence and the Arts," Leonardo, Vol 16, No. 1 (Winter, 1983) pg 15-20.
18. Joseph, "Engineering Marvel"
19. Amy Goldin, "Art and Technology in a Social Vacuum," Art in America, May/June, 1972.
20. Edward A. Shanken, *Art in the Information Age: Technology and Conceptual Art*, Leonardo, Vol. 35, No. 4, (2002), pp. 433-438 <http://blog.lib.umn.edu/willow/artech/shanken-Art,%20Info%20Tech%20.pdf>
21. See Pamela M. Lee, *Chronophobia: On Time in the Art of the 1960s* (Cambridge, MA: MIT Press, 2004)
22. I am following Bernard Stiegler's use of the term here.
23. As Douglas writes, "It is because technology and the Internet have changed the way we understand, contextualize, curate, appreciate, create and critique art that we can say the future of all art is, and is eventually bound to be, the product of these societal, cultural and political technologic arrangements". Louis Douglas, *Within Post-Internet, Part One* <http://pooool.info/within-post-internet-part-1/>
24. "The effects of the 'digital revolution' have been analysed for the most part in terms of their effects on individual consumers, rather than from the perspective of the pressures exerted on those charged with their production." Harry Sanderson, "Human Resolution," *Mute*, April 4, 2013 <http://www.metamute.org/editorial/articles/human-resolution>. I am indebted to Michael Connor for bringing Sanderson's essay to my attention.
25. As Gramsci writes, "the term intellectual must be taken to mean [the] whole social mass that performs functions of organization in the broad sense: whether in the realm of production, culture, or public administration," *Prison Notebook* 1, 43.
26. Steven Shaviro, "Accelerationist Aesthetics: Necessary Inefficiency in Times of Real Subsumption," e-flux journal #46, 06/2013, <http://www.e-flux.com/journal/accelerationist-aesthetics-necessary-inefficiency-in-times-of-real-subsumption/>
27. Franco "Bifo" Berardi <http://totalassaultculture.wordpress.com/2010/03/04/franco-bifo-berardi-the-soul-at-work-from-alienation-to-autonomy/>
28. Franco "Bifo" Berardi, *The Soul at Work: From Alienation to Autonomy*, (Los Angeles, Semiotexte, 2009) 21-22.
29. Ibid, 22.
30. Franco "Bifo" Berardi, *Precarious Rhapsody: Semi-capitalism and the pathologies of the post-alpha generation* (London: Minor Compositions, 2009), 41 www.16beavergroup.org/bifo/precarioushapsodyweb.pdf,
31. Ibid
32. Harry Sanderson, "Human Resolution"
33. Sanderson, "Human Resolution"
34. Stiegler, "Anamnesis and Hypomnesis"
35. Paul Virilio quoted in Sanderson.
36. The term was coined by Jarod Lanier. See Lanier, "Digital Maoism: The Hazards of the New Online Collectivism," EDGE <http://www.edge.org/conversation/digital-maoism-the-hazards-of-the-new-online-collectivism>
37. Bishop, "Digital Divide"
38. Ibid
39. Ibid
40. Ibid. Michael Sanchez describes the corresponding formal and stylistic effects on painting and sculpture in "2011: Art and Transmission," Artforum Summer 2013, <http://artforum.com/inprint/id=41241>
41. Martin Heidegger, "The Question Concerning Technology" simondon.ocular-witness.com/wp.../question_concerning_technology.pdf
42. N. Katherine Hayles, "Virtual Bodies and Flickering Signifiers," www.english.ucla.edu/faculty/hayles/flick.html.
43. <http://www.spreadnetworks.com/press-releases/10-04-2012-latency-improvements/>
44. This and other real world effects of algorithms are discussed by MIT Media Lab professor Kevin Slavin. See *How Algorithms Shape the Landscape*, <http://dirt.asia.org/2011/11/30/how-algorithms-shape-the-landscape/>
45. <http://www.spreadnetworks.com/press-releases/10-04-2012-latency-improvements/>
46. James Manyika, Michael Chui, Jacques Bughin, Richard Dobbs, Peter Bisson, and Alex Marrs, "Disruptive technologies: Advances that will transform life, business, and the global economy," McKinsey Global Institute, http://www.mckinsey.com/insights/business_technology/disruptive_technologies
47. As Michael Sanchez writes, "[w]ith the iPhone and the Web aggregator... [a]n image of an exhibition can be posted the moment it opens, or even before. An artist, curator or dealer receives an update containing images of the show on her phone, which she then forwards to colleagues, in a chain of events perhaps leading to another exhibition." Sanchez, "2011: Art and Transmission."
48. Vierkant, *The Image Object Post-Internet*.
49. See Sanchez, "2011: Art and Transmission"
50. Shavir, "Accelerationist Aesthetics: Necessary Inefficiency in Times of Real Subsumption"
51. As Paul Virilio writes, all technologies generate their specific accidents: "ship=ship wreck, train=train wreck, plane=plane crash." Paul Virilio in conversation with Philippe Petit *Politics of the Very Worst*. (New York: Semiotext(e), 1999) 92-3
52. The term is from China Miéville's *The City and the City* (2009) and refers to areas in the novel's setting in which the inhabitants of two cities exist side by side, yet unseen.