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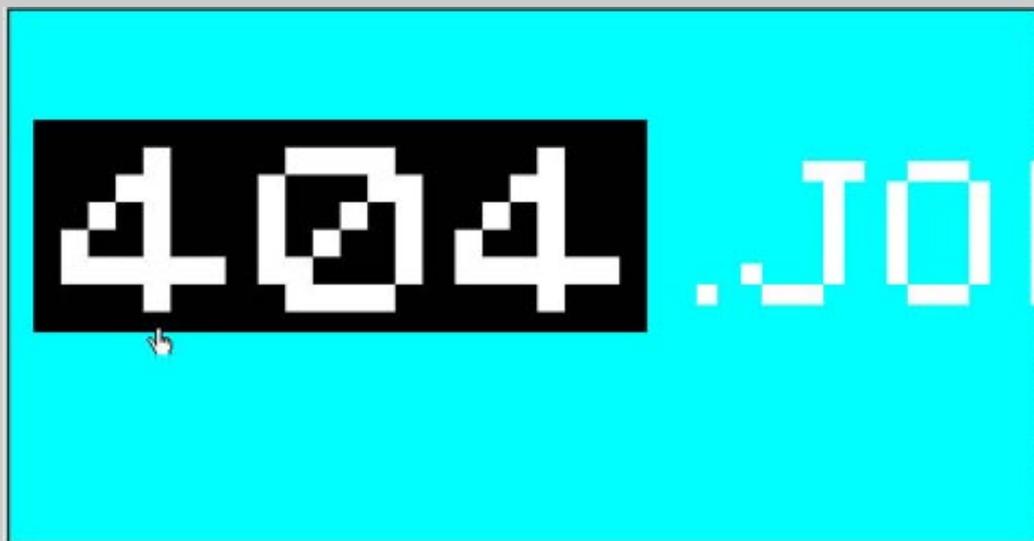
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2. Precepts for a digital artwork



The primary task of the contemporary artwork is not to represent an object world to a subject supposed to have a monopoly on consciousness. That task belonged to a historical epoch when the emergent and then triumphant industrial bourgeoisie required an artistic and scientific culture to promote the philosophy of willed domination over an alienated nature and an objectified and to that extent also alienated industrial class structure. Industrial capital created a culture of materials, including technology and the labour force, that required the form-giving principles of an industrial aesthetic, focused on the intensely local hub of manufacture: the factory. Industrial networks were a function of

their nodes.

In the information economy, the nodes are functions of their networks. The global today is necessarily prior to the local, especially those localities which, like the border free trade zones of Tijuana studied by Coco Fusco, are sites of oppression. The reality of a woman forced into prostitution by the strategic requirements of the global economy cannot be photographed. No indexical account, anchored in the preeminence of the local in industrial culture, would be sufficient to understand the forces acting on her. A photograph would only stir the sentimentality defined a hundred years ago by the novelist Meredith: pleasure without responsibility. Responsibility today derives not from empathy, in any case a metropolitan prurience, but from understanding the networks that force her into this double economic and sexual oppression, the task of an iconic art, and the symbolic regimes that describe, define and give meaning both to her experience and to that of her oppressors, who include every user of the computers she builds when not supplementing her non-union subsistence wages with sex labour in the tourist economy. **The digital artwork must be networked**, and the formation of alternative networks is a critical function of them.

An artwork is material, and an artwork that fails to take account of its materiality fails to that extent. Digital materials are no exception. What is vital in the indexical quality of media arts is not that they point away from themselves towards a recorded past to which is ascribed a reality they deny themselves. Rather, digital indexicality presents its own materiality as what it is -- a concrete node constituted in the networks of social relationships, including the NAFTA sweatshops. As Margaret Morse (1998) argues of digital installation art, the contemporary artwork must construct its own local, not presume it. The embodiment that concerns it is not the depicted body abstracted into a type that can be identified as the body, but a specific body constructed as local in the locality of the installation itself, a unique body which there confronts the imbrication of embodiment in the global networks that are brought to bear in the devices that surround it. In this way the digital index points not towards the recorded past of representation but to the materiality of the present as a concrete node of a networked society. **The digital artwork must be material**, and its materiality incorporates the bodies that come into contact with it and the local space and present time of their co-existence.

Which brings us to a crucial issue: **the digital artwork is processual**. When the index depicts its object, it both objectifies that object and presents itself as another object standing over against the depicted. But in the information economy, objectality is a secondary effect of primary flows, an argument made as forcefully by urbanists like Saskia Sassen (1991) and Manuel Castells (1996) as it is by Deleuze and Guattari (1972, 1980). In the attempt to image flow, the principle of indexicality itself demands abandoning the index as primary resource, since there is no object toward which it can stand in any relation. Instead, the intrinsically relational symbol takes priority. Information flows are relational first: content, expression, even form are secondary to this materiality. If the digital artwork is to be adequate to this relational world, it must itself prioritise relations. Communication is that relationship which precedes its terms -- from the same standpoint, a line is no longer the shortest distance between two points; instead the terminal points are defined by the activity of the line. The active principle of communication defines senders and receivers, not

vice versa. The material process of establishing relationships, which I tend to call mediation, is the core task of digital art today. It should also be emphasised here that the processes of mediation are not necessarily exclusively human. In our field, they also can -- and perhaps must -- engage a relation that determines the material of mediation, the technologies employed in it, as a term of the relation. We can no longer deploy machines as fixed capital without submitting ourselves to the anonymous and to that extent autonomous dead labour of the machine in pursuit of that anonymity and autonomy which post-subjectivity seeks in mirroring the dissolution of the object in information flows.

The digital artwork must mediate, and in submitting to the mediation of technology, offer itself to the task of vindicating the generations whose lost lives are congealed into the shape of our devices.

The acceleration of modernity in contemporary societies has reached a point at which the pseudo-instantaneous management of data flows has resulted in what at first glance appears as a total administration of the present. When cultural critics as alert as Paul Virilio describe communication as instantaneous, not only do they deny the materiality of mediation; they fall into an ideological trap laid precisely by the administration. Discourse that surrenders to the ideology of light-speed communication presents as normative the proposition that the present is always already documented -- represented, distributed, consumed and past. The technological fact is that transmission is not only delayed by the institutional processing which administration demands, but by the physical limits to the speed of electromagnetic wave forms. Very, very fast is still not instantaneous, and the present should never be mistaken for its occupation by images of even the most recent past -- the one 25th of a second required, for example, to build up an electron scan on a video monitor. As process, not object, **the digital artwork must inhabit the present as a moment of becoming**, a moment whose reception is therefore always deferred into a future which has not yet become.

The immediate result of this habitation of the present is that **the digital artwork is by nature ephemeral**. The remarkable archiving of web and net art undertaken by Steve Dietz at the [Walker Art Gallery](#) is a case in point. Dietz is clear as curator, and the design of the frame that surrounds the documented sites ensures that any visitor should be too, that what is archived here is not art but documentation. The important task of archiving does not deny ephemerality: on the contrary, it affirms the gap between archive and art, and asserts if anything the necessity of the distinction. Like the special effects blockbuster, the digital artwork is condemned to be cutting-edge, but unlike the blockbuster it doesn't suffer from the patina of the out-of-date that so rapidly scratches the emulsion of films that have passed their sell-by. Instead, that passage into the archival ensures both that the code enabling the work becomes a resource for other artists ('The writer who does not teach other writers teaches no-one' -- Benjamin 1973) at the same time that it ceases to function as an occupant of the present. If the web, as auto-surveillant traffic in documents, is a self-mapping device, its cartography is itself effervescent -- a simulation which is no sooner recorded than it becomes defunct. In the same way, the instruction set that generates a digital artwork is over as soon as it has completed its run. This is why the effects movie is never an artwork, and why Photoshop images are so aesthetically moribund: what has been aesthetic in them is the process of making -- once that process is terminated, the art is over, and what is presented to the public is only its discarded archival image.

To this extent, whatever is mimetic in the digital is a mimesis of a task already accomplished, a body that is already past, and as such is excluded from the aesthetics of digital artworks, in which the process is as yet unfinished. The mimetic persists, but as a raw material for further processes. In this sense, **the digital artwork is obliged to be incomplete**, its ephemerality dependent on the deferral of all goals to a time which cannot be achieved in the artwork, but toward which it aspires, and in whose direction it gestures.

Moreover, the ephemerality of the digital is an integral element of its formal properties. As Virilio would say, the invention of the computer is also of necessity the invention of the computer crash. Many of the most significant works -- Jodi's are the most obvious -- are dependent on the disruption of the normative efficiency which has been inscribed into computer design as an ideology if not a reality. In a recent piece, [Lapses and Erasures](#), Sawad Brooks undertakes a related task, writing in a text note to the piece

In analog media, when something is erased, it is often possible to sense the mark left by erasure. Thus Rauschenberg was able to present his "Erased de Kooning" drawing as his own (ironically). Erasure leaves its own traces, it is writing or drawing. It is a wiping clean which puts forth an order with the possibility of decipherment. . . . I make drawing interfaces to draw upon the erasure of erasure in the realm of the digital.(Brooks 2000: np).

If drawing is a practice in which the artist subordinates herself to the activity of the line as to a machine designed to generate a non-volitional autonomy from selfhood, as it is in the work of [David Connearn](#), subordination to the technologies of computer memory offer a further tool: the double negation of the erasure which the computer also enables, its amnemotechnics, becomes a resource for the construction of the future as the erased erasure of the past. The proof is that it is almost impossible to erase a file accidentally. Traces remain from which skilled operators can retrieve even the most shredded data as, once again, the Microsoft trial researchers proved in their fossicking among the dead-letter offices of internal e-mails. Erasure is a making of traces in the form of what has been erased, but where in analogue media what is revealed is the surface which the erased drawing itself erased, in the digital there is no preexisting surface, only the space created by the act of recording, so that what erasure produces is the evidence of a surface that never existed prior to the erasure. At the same time, however, the erasure is never complete, but approaches asymptotically to the mystical point of zero existence. Here, as in the attempt to make a total artwork, zero resembles infinity more than it does unity, and can only be approached by infinitesimal subdivisions of the existing. Where analogue media had the power to work in the binary opposition of presence and absence, the digital are endowed or cursed with an inability to deal in absolutes. To this extent then, **the digital artwork must be imperfect**, since it can never achieve either absolute existence nor absolute absence. The greatest benefit of this discovery is that the imperative towards harmony need not be heeded, and the digital is thus freed of the necessity of harmonising formally a world which is, in all its relations, so profoundly inharmonious. The digital is profoundly incapable of that perfected harmony in which the ideological tasks of societies are achieved under the guise of the autonomous artwork.

The processual nature of digital art makes it incomplete and imperfect, in the sense that it cannot achieve the absolute completion and perfection of pure presence. In fact that metaphysics of presence, abandoned first by mathematics in the mid 19th century, now haunts, as absence, only the transitory sublime of annihilation as special effect. Nonetheless, though practice has all but abandoned it, the sublime still haunts contemporary aesthetics from Adorno to Danto as both the Kantian marvelling at domination and its negation -- the abjection of the subject. This unappetising metaphysical binary suits the times, as visible in the new cult of Bataille as it is in the neo-Kantianism of Lyotard's late writings. The result is a performance, typical of idealist metaphysics, that simulates the aesthetic dialectic in the static play of a rational/irrational binary that merely enacts modernity's logic of efficiency and degradation. In aesthetic terms, here rigor mortis masquerades as danse macabre. It fails not so much because of this stasis, however, nor because of its misreading of the present as 'what is the case', but because it takes reason and unreason as essential terms in an epoch in which essences no longer pertain. **What distinguishes the digital artwork is its elegance**, in the sense intended by David Gelernter: its clarity, economy of means, operational grace.

This is not to say that digital artworks are passionless and formalist. On the contrary: the hall of binary mirrors that traps essentialist art produces that affectless manipulation of tear ducts, erections and fight-or-flight adrenal secretions in sedentary and stultified consumers. It is rather the case that the characteristic emotions of digital artworks -- the movement through disorientation to new orientation, for example, in a dislocated place, the gasp at beauty realised on the wing, the complex humour of, for example, the [First International Competition of Form Art](#) -- are more subtly and actively conformed to the changed character of accelerated modernity. They are, in a word, necessary. **The digital artwork must be necessary**: its elegance is a function of the need for the work. That need can no longer be formed as expression, although it remains true that contemporary capital is ever more dependent on the hyperindividuated narcissism of the competitive corporate playpen, and an art that pretends to bypass that lens of subjectivity thereby fails to respond to the necessity of individuation as a passage through which a work moves. Expression remains, but now as the anonymous product of autonomous networks.

Aesthetic necessity arises at once from the fact of flow, its mediations and the temporalities they engender. The tendency of capital is toward monopoly; that of its flows toward domination. Control over financial flows in particular is the goal of transnational capital. But this goal is realisable only in the eradication of difference, that difference which produces flow from one place to another. That difference, since it cannot be eradicated systemically without destroying the flows themselves, is now displaced into the managed future of corporate planning, most directly in the simulation of futures markets. But when the future is evoked as the basis of global stability, capital faces a crisis of unpredictability. As ideology, future modelling depends on ever more refined data sets and ever more rigorous algorithms for their projection. But it is precisely in computer modelling that the problem of turbulence is posed most categorically. Not only definitionally but technically, the future resists modelling.

By dint of its pseudo-theological position in the regime of global data flows and

their perpetually deferred promise of perpetually deferred payment, the future is held to vindicate the claims of the present to wholeness and completion. But the deferral on which that wholeness rests denies that wholeness to it. As the active relationality of networks, mediation, by definition in process and incomplete, is thus forced to pretend to a completion to which it cannot attain. Its materiality is deferred into the not-yet as the price of its present functioning (a state of affairs that generates the illusion of static binary oppositions). This contradiction in turn generates the digital aesthetic as its necessary outcome: the materiality is restored to the present, while the function is shifted into the unforeseeable future. Hegel's concept of art as the consciousness of need is the inspiration for this insight, but as the digital aesthetic arises from the relationality of global networks inclusive of human and machine components, that consciousness is now not individual or even merely social, but cyborg. **The digital artwork is cyborg:** it responds to the institutional, economic and discursive formation of corporations as actually existing cyborgs by building an alternative consciousness in which the mechanical is no longer the object of domination but integral partner in the production of culture. Neither the consciousness under construction nor the need to which art responds are then entirely or purely human.

In order for the future to be held up as the settling of accounts on the promissory notes of the economic, political and ecological present, it is essential for the administration of global data flows that the future be isolated from the present, so that the promised completion on the deals which are the dominant mode of communication today need never arise. Here a specifically temporal contradiction arises: the difference between future and present is both affirmed and eradicated. The future must be both continuous with the present (all debts depend on the concept that they can eventually be paid) and entirely divorced from it (since debt is the motor of financial flows, they must never be allowed to be paid). It is this faultline of difference between present and future that requires the digital as its necessary outcome: its elegance derives in part from its determination as the inhabitation of the present as difference. The digital artwork has no choice but to affirm the immanence of the future at the point of its emergence.

The necessity of the digital artwork is then not organic in the sense propounded by Romantic aesthetic philosophy, since it necessarily abjures wholeness. Instead, the digital works at the level of mediation as the unhappy conscience of dominant communication, a cyborg will to grace. The digital is then communicative rather than representational. This places it in opposition to the evolution of e-cash as the supposedly immaterial universal signifier of all exchange values, promoting the substitutability of everything for anything. Asserting aesthetic difference restores neither the individuality of objects nor the objectality of individuals, the reciprocal functioning of index and identity resulting from industrial modes of communication. Instead it asserts the primacy of mediation, of the material of relations. In this perspective, the digital artwork can be assessed according to the breadth, depth and complexity of the networks it engages or engenders. Unlike Deleuzian difference, however, aesthetic difference is not an absolute horizon external to all humanity and all communication, but a difference intrinsic to communication which, viewed outside the confining determinations of the actually existing historical conditions, is defined by its tendency towards inclusiveness and its capacity for translation, misunderstanding and so for interpretation and systemic

innovation. Communication's own need, bred in the interface of combined human and technological networks, is that of a newly cyborg communicative species for inclusion and autonomy. The digital is the necessary next phase in this historical process, a process which I believe is synonymous with history: hastening the globalisation of the mediating infrastructure while driving forward those internal contradictions that make the global and deferred information economy unthinkable neither present nor future. Like Ed Dorn's railway wagon, everything is behind and nothing in front. Mediation is the activity through which the hybrid communicative species become, and specifically how they become other than they now are.

When, as D.N. Rodowick explains it, Deleuze argues that 'what philosophy resists' is 'the globalization and banalization of information as a power that affirms the dominance of late capitalism' (Rodowick 1997: 192), we perceive both the binarism that hog-ties Deleuze's philosophy for lack of a dialectic, and the weakness of a politics that relies on the unequal struggle of philosophy against world capitalism. You can be guaranteed that philosophy will only ever resist, and that it will never triumph. Against this brave, pious but ineffectual quietism, and against what Eco (Eco 1986: 93) refers to as the 'negative theology' of philosophical nihilism from Heidegger to Baudrillard, **the digital artwork must be communicative**, for only communication is vast enough and necessary enough to endure and to overcome the vicissitudes through which it is being tortured in the age in which communication is information, information is power, and money and data are electronically indistinguishable.

The implication of the theses of ephemerality and communication is that the digital has an altered relation with consumption. Much electronic art owed and owes its genesis to the conceptual art of the 1970s and to the critique of the commodity which gave rise to media as varied as LeWitt's instruction sets, the Situationist *dérive* and the community workshop and newsreel movements. But now that the commodity itself is in a state of implosion, a vacuity both raged against and celebrated in the rage of mainstream culture from Tarantino to rap, the focus of the digital is shifting from the provision of objects whose contemplation exposes the emptiness of the commodity towards building encounters for participation. This has little to do with what is usually referred to by the term interaction. It concerns rather factors such as the level of skill required of both producers and participants in digital artworks. The digital artwork demands that audiences acquire a determinate set of skills and understandings to participate fully in the work. In Toshio Iwai's *Resonance of Four*, for example, there is a default state which is pretty but dull, while random gestures with the track ball will produce interactive 'rewards', coloured lights and sounds. But the experience of the work as artwork demands both understanding the principle of the device as a composing machine, and working in consort with three other users to create music. **Artisanship is integral to the digital:** so the best artists are also either engineers or groups including technologists and programmers, and so our students demand of us programming skills more than bundled packages. This goes against the current of the televisualisation of the web, where the end-user defined html language is being submerged in a wave of server-defined Javascript while, as Tim Berners-Lee (1999) argues, the full interactive power of alternatives like the Linux-based Amaya browser remain unexplored and marginalised. The old balance cannot be restored: instead, it must be remade, as it is in interventions like **The Webstalker** that not only offer control but demand active participation.

Something similar is true of [RTMark's](#) web works, which imitate the control structures of corporate web-design but demand action if they are to be experienced not as parody but as art.

Digital media are grounded in work in a second sense: to return to an earlier theme, electronic media are grounded not in leisure, as the televisualisation of the web insists, but in the workplace. In place of the elite contemplation of the refined consumer, the digital artwork demands the intellectual and emotional graft needed to change the work into something else, very clearly in the collective montage projects now such an integral part of web art, but also in projects like Sera Furneaux's *Kissing Booth*, where users not only orchestrate virtual kisses but record their own into the booth's database. In this instance, the work does not exist until the user provides the input. This culture of the database is akin to activist post-artworks like the SOS Racisme mail-bombing of Le Pen's National Front, or the Zapatista Interneta's of the Frankfurt stock exchange. Conceptualism left a legacy of anti-commodity art: its dialectical outcome is a pro-work work. **The digital artwork is work**, a labour shared in the human-computer interface and, like any work, founded in a social process that demands cooperation among workers, and between workers and those anonymous forebears whose skills are enshrined and concretised in the dead labour of our machines.

As work, the digital requires the shared labour, specifically, of artist and audience, to the extent that the distinction begins to blur. To what extent are Audio-ROM the authors of a sound piece I might make with their programmes and interfaces but using my own samples and, since the coding is open, my own coding too? On the one hand, this scares those brought up in the expressive ideology of the art schools, and on the other the pious elitism of humanist scholars who, 30 years ago, leapt at the novel focus of the Birmingham Centre for Contemporary Cultural Studies to abandon attempts to understand labour. Yet work is today a curiously liberating principle. To the extent that artists relinquish control over the artwork and, to that extent, over the audience, the audience must assume the same degree of responsibility for the work that the artist has abandoned in offering it to them. Without that assumption of responsibility, the artwork resorts to the default state of older art: passivity and what we must now understand as the anaesthetic. **The digital artwork demands responsibility**: there is no art where the audience does not take up this gauntlet and where instead it reserves for itself the sentimental position, enjoyment without responsibility. This is the burden of Eduardo Kac's [Teleporting an Unknown State](#), in which the survival of a small plant depended on CUSeeMe clients providing it with remote sunlight, or Ken Goldberg's [Telegarden](#) which depended on telerobotic users to tend the garden. Likewise, since even in death the labour of past centuries is still exploited, the digital artwork's destiny is to redeem and liberate the concretised labour embodied in our communicative machines. That is how the past becomes future, beyond the old lie of posterity. After all, we are the future that our ancestors looked to to judge and justify them, and we are not worthy -- unless we seize the present as the becoming of their future. This is the responsibility which we take up, the only people among all the humans who have ever lived, who are alive now.

Under the existing circumstances difference is not a given, a foundation (however complex) or a horizon but a job of work: making a difference.

Communication, under the historical conditions of contemporary capital, can no longer be presumed as an a-historical given. In a time in which it is almost entirely identifiable with the circulations of global finance, such that our consumption of commodities even is merely a necessary moment in the circuits of capital, communication must be fabricated, since it is no longer natural. On this fabrication depends the making of a culture that is no longer crowned by the negation of its own negativity, as remains the case with accelerated modernity. Instead, the digital must turn towards the positive construction of the present as difference, a creation that only becomes possible in the era of a planetary communications infrastructure. As construction, the digital must forswear the sublime, for the sublime confronts us not as the incomprehensible but as the incommunicable, an absolute horizon beyond history. To construct is to act historically, to embrace the interests, human and technological, that have been left so egregiously unsatisfied by the culture of the commodity, itself increasingly embraced in the anaesthetic of its own sublime absence from itself. Change is the quality of history and of beauty -- what is transient, what comes into being in the moment as the emergence of futurity. **The digital artwork must be beautiful.**

These explorations can be summarised in terms of a series of principles I have tried to voice here:

- The digital artwork must be networked**
- The digital artwork must be material**
- The digital artwork is processual**
- The digital artwork must mediate**
- The digital artwork must inhabit the present as a moment of becoming**
- The digital artwork is obliged to be incomplete**
- The digital artwork is by nature ephemeral**
- The digital artwork must be imperfect**
- What distinguishes the digital artwork is its elegance**
- The digital artwork must be necessary**
- The digital artwork is cyborg**
- The digital artwork must be communicative**
- Artisanship is integral to the digital**
- The digital artwork is work**
- The digital artwork demands responsibility**
- The digital artwork must be beautiful**

The digital is a malleable aesthetics (Deck 1999), based on the principle that anything that can be made can be remade. Where the artworks of the industrial era hover between existence and non-existence, presence and absence, the digital seizes on the not-yet for its own domain at the moment of its emergence. Its time is the time of becoming. The cost is great: the loss of permanence, of authority, of wholeness. As work, the artwork that ceases to transform the emergence of the future ceases to be art and becomes archive: the vibration of binary industrial-era art no longer animates the *démodé*. The innocence of play is denied us in a time when play has become a key strategy of the corporate management of creativity in hock to the production of new consumer goods. We may no longer inhabit the present for its own sake, as the impressionists and the Lumière brothers could, but only for the sake of a future for which we

are enjoined to take responsibility. The great negation which guided the avant-gardes of the 20th century no longer holds in the 21st, and without that guide, we risk the sentimental positivity of Ewoks and tamagotchis. Most of all, we suffer the immense burden of beauty, the terrible onus of bringing into existence. But on the positive side, we have the whole of history, its staggering defeats and millennia of immiseration, to propel us into the new.

REFERENCES



- Adorno, Theodor W, (1997), *Aesthetic Theory*, ed Gretel Adorno and Rolf Tiedemann, trans Robert Hullot-Kentor, Athlone Press, London.
- Benjamin, Walter (1969), *Illuminations*, ed Hannah Arendt, trans. Harry Zohn, Schocken, New York.
- Benjamin, Walter (1973), 'The Author as Producer' in *Understanding Brecht*, trans Anna Bostock, New Left Books, London, 85-103.
- Berners-Lee, Tim, with Mark Fischetti (1999), *Weaving the Web*, Orion, London.
- Birkerts, Sven (1994), *The Gutenberg Elegies: The Fate of Reading in an Electronic Age*, Faber, London.
- Brooks, Sawad (2000), [text] at <http://www.thing.net/~sawad/erase/trait/text.html>
- Castells, Manuel (1996), *The Information Age: Economy, Society and Culture volume One, The Rise of the Network Society*, Blackwell, Oxford.
- Critical Art Ensemble (1996), *Electronic Civil Disobedience and Other Unpopular Ideas*, Autonomedia, New York.
- Deck, Andy (1999), 'Curatorial Algorithms and Malleable Aesthetics' in *Millennium Film Journal* n.34, Fall, 82-91.
- Deleuze, Gilles and Félix Guattari (1972), *L'Anti-Oedipe (Capitalisme et*

- Schizophrénie I), Editions de Minuit, Paris.
- Deleuze, Gilles and Félix Guattari (1980), Mille plateaux (Capitalisme et Schizophrénie II), Editions de Minuit, Paris.
- Druckrey, Timothy (1999), Netopos . . . Notopos: The Fate of Reason in the Global Network: Teleology, Telegraphy, Telephony, Television, Telesthetics' in Timothy Druckrey with Ars Electronica (eds) (1999), Ars Electronica: Facing the Future, MIT Press, Cambridge MA., 305-311.
- Eco, Umberto (1986), Faith in Fakes: Travels in Hyperreality, trans William Weaver, Minerva, London.
- Eisenstein, S.M. (1988), 'The Problem of the Materialist Approach to Form' in Selected Works, volume 1, Writings, 1922-1934, ed and trans Richard Taylor, BFI, London, 59-64
- Eisenstein, Sergei M (1993), 'Imitation as Mastery' in Ian Christie and Richard Taylor (eds) (1993), Eisenstein Rediscovered, Routledge, London., 66-71.
- Gelernter, David (1998), The Aesthetics of Computing, Phoenix, London.
- Morse, Margaret (1998), Virtualities: Television, Media Art, And Cyberculture, Indiana University Press, Bloomington.
- Peirce, Charles Sanders (1991a), 'One, Two, Three: Fundamental categories of Thought and Nature' in Peirce on Signs: Writings on Semiotic by Charles Sanders Peirce, ed James Hooper, University of North Carolina Press, Chapel Hill, 180-185.
- Peirce, Charles Sanders (1991b), 'A Guess at the Riddle' in Peirce on Signs: Writings on Semiotic by Charles Sanders Peirce, ed James Hooper, University of North Carolina Press, Chapel Hill, 186-202.
- Poster, Mark (1990), The Mode of Information: Poststructuralism and Social Context, Polity, Cambridge.
- Postman, Neil (1992), Technopoly: The Surrender of Culture to Technology, Vintage, New York.
- Rodowick, D.N. (1997), Gilles Deleuze's Time Machine, Duke University Press, Durham NC.
- Sale, Kirkpatrick (1996), Rebels Against the Future: Lessons for the Computer Age, Quartet, London.
- Sassen, Saskia (1991), The Global City: New York, London, Tokyo, Princeton University Press, Princeton NJ.
- Willemsen, Paul (2000), 'Of Mice and Men: Reflections on Digital Imagery' in TwoNineTwo, n.1, 5-20.
- Yampolsky, Mikhail (1993), 'The Essential Bone Structure: Mimesis in Eisenstein' in Christie, Ian and Richard Taylor (eds), Eisenstein Rediscovered, Routledge, London, 177-188.

SITES CITED and other relevant links

- Anti-Rom <http://www.antirom.com/antirom01/index.html>
- Digital Landfill <http://www.potatoland.org/landfill/>
- Digital Souls <http://www.digitalsouls.com/>
- Form Art Competition Winners <http://remote.aec.at/form/winners.html?>
- ICC Tokyo http://www.ntticc.or.jp/menu_e.html
- Jodi <http://www.jodi.org/>
- Eduardo Kac <http://www.ekac.org/>
- Lapses and Erasures (Sawad Brooks) <http://www.thing.net/~sawad/erase/>
- RTmark <http://www.rtmk.com/>

Telegarden <http://www.usc.edu/dept/garden/>

Teleporting an Unknown State <http://www.ekac.org/teleporting.html>

Walker Art Gallery New Media Initiatives

<http://www.walkerart.org/nmi/index.html>

The Webstalker <http://bak.spc.org/iod/>

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