

TIME - SPACE COMPRESSION IN CYBERSPACE ART

Avi Rosen

Faculty of the Arts, the Art History department, Tel Aviv University

avi@siglab.technion.ac.il

The term "time - space compression" was coined by David Harvey [1] in his book, "The Condition of Postmodernity" (1989). It refers to speed-up in the pace of life, while abolishing traditional spatial barriers.

The industrial revolution introduced the railroad and the telegraph line, paving the way for future changes in communications. It brought about the perceptual changes needed in early twentieth-century culture for the rise of the new media that captured communications: photography, cinema, radio and the telephone. The new "high-speed" technologies were the origins of the modern "annihilation of space and time" upon which nineteenth and twentieth-century perceptions of the real world depend. The train and railway system caused distortion in the traditional perspective and sight. This foreshortening of time and space, started by the train's speed, caused display in immediate succession of panoramas and objects that in their original spatiality belonged to separate realms.

The accelerated viewer was able to perceive the discrete, as it rolls past the coach window indiscriminately; it was the beginning of the synthetic glance philosophy. J. M. W. Turner was one of the first artists implementing the time-space compression aspects. In "Rain, Steam, and Speed The Great Western Railway" (1844) Oil painting, he confronted a "slow" ploughman in the field, with a high speed locomotive engine diagonally crossing while causing a whirlpool to the pastoral landscape.



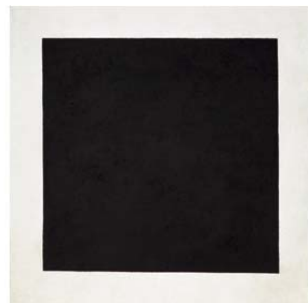
J. M. W. Turner "Rain, Steam, and Speed The Great Western Railway" (1844)

From: Wikimedia Commons

http://en.wikipedia.org/wiki/Image:Rain_Steam_and_Speed_the_Great_Western_Railway.jpg

The overall impression is of compression and distortion caused by the [Doppler Effect](#), as perceived by the artist positioned relative to the speeding locomotive, or on a ship's mast at stormy sea, as Turner used to do for close experience of speed and nature forces. This phenomenon of nonlinear time and space sensation, together with industrial mass reproduction is a basis to the photographic and filmic vision and notion of montage, as well to the non-linear geometry implemented by Impressionists like Édouard Manet in "[Luncheon on the Grass](#)" (1863). The male figures are dressed in Charles Baudelaire's [flâneur](#) fashion. The background woman who wades in a stream is too large in comparison with the figures in the foreground; she seems to float. The overall impression is lack of depth, reinforced by the use of broad "photographic" light eliminating "natural" shadows.

The mobile accelerated eye and consciousness that swiftly jumps from point to point will tend to focus on random details or to accumulate empathetic impressions of tactile sensations. Similar non-linear multifocal techniques were implemented by Cubists such as [Picasso](#), and Futurists such as [Giacomo Balla](#) who created a visual analysis of objects made simultaneously from different spatiotemporal points of view. The artist's acceleration and omnipresence transformed the process of artistic creation to an almost religious significance because it involves restructuring of novel time and space, a penetration into reality itself. The Suprematist Kazimir Malevich placed his "Black Square" (1923) canvas in the traditional position of a holy icon in Russian homes. The black square symbolized the death of traditional art and nature, deriving from Einstein's new relativity theory, speed of transportation and means of communication. The implementation of mass production ready-mades like wallpaper or newspaper cuttings into art compositions potentially enabled a wide consumption and presence of fine art.



Kazimir Malevich, "Black Square" (1923). From: Wikimedia Commons

<http://en.wikipedia.org/wiki/Image:Malevich.black-square.jpg>

Artistic omnipresence caused by the compression of time - space leads to dramatic change in artistic conventions such as Walter Benjamin's "[aura](#)". Mass production of objects, instant spread and accessibility to all, made every myth instantly realizable. The telephone, photography, movies and even traditional painting inspired by the new

technology cluster the most disparate data and images into one compressed new reality of annihilated in-between spaces, and finds its highest expression at the viewer-accelerated consciousness. When time-space is no longer experienced in Euclidian manner, the gap between original and reproduction vanishes, as everything rolls past the train's coach window randomly. At the turn of the twentieth century, Paul Valery predicted:

"Just as water, gas, and electricity are brought into our houses from far off to satisfy our need in response to a minimal effort, so we shall be supplied with visual or auditory images, which will appear and disappear at a simple movement of the hand, hardly more than a sign."

[\[2\]](#).

This compression effect was intensified during the twentieth century by the electronic media technology. Marshall McLuhan described in "Understanding Media" (1964) the global compression by communication reality to shape a "global village":

"After three thousand years of explosion, by means of fragmentary and mechanical technologies, the Western world is imploding. During the mechanical ages, we had extended our bodies in space. Today, after more than a century of electric technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned. Rapidly, we approach the final phase of the extensions of man - the technological simulation of consciousness, when the creative process of knowing will be collectively and corporately extended to the whole of human society, much as we have already extended our senses and our nerves by the various media." (p. 19-20).

Pop Culture and Pop Art are reflections of the global spatiotemporal compression. [Andy Warhol](#) addressed in his art typical mass-produced commodities: soups, bottles of Coca Cola, and shoes together with icons of common consciousness that flood the media channels such as: the electric chair, Marilyn Monroe, Golda Meir, dollar bills, and more. [Madonna's](#), [Jeff Koons's](#) and Warhol's lifestyle and art, promoted them as products of the global media and as celebrities. Art became an intangible object of information and symbols consumed globally by "[one-dimensional](#)" subjects of "one-dimensional" global culture. The global culture consumption act is performed at commercial centers such as malls, amusement parks and air terminals linked to the global network of production, data and knowledge. The global net lifestyle is imperative to grow new organs, to expand the human sensorium and body to some new, as yet

unimaginable, and perhaps ultimately impossible, dimensions ([Jameson](#)). The reflections of the traditional three-dimensional global space are converted to electronic digital information, displayed in real time on flat television and computer screens at home, control rooms, and huge outdoor electronic displays, in the style of New York's Times Square, or Piccadilly Circus in London. Our vision, accelerated to the finite speed of light, guided by our consciousness, controls the happenings of the real world via electronic equipment, through making an instant "short circuit" between action and reaction. The three-dimensional linear physical world, experienced by the railway passenger, became an infinitely thin world of non-Euclidian electronic information, examined by infinitely attenuated TV viewer linked to TV networks of "digital highway". Recent [physical theories](#) assert that the three-dimensional universe is nothing but a membrane in multidimensional space. The flat TV and computer displays, together with our retina and brain, are tiny segments of this torus-like cosmic topology.

Nam June Paik made the video "[Buddha](#)" (1976-78), that is a sculpture of Buddha sitting in a posture of meditation opposite a closed-circuit television image of him. The video creates endless body reflections by means of speed-of-light technology, and unites the TV image with the physical body. In his work "Buddha Reincarnated" (1994), Paik upgraded the earlier work with Buddha meditating opposite a computer screen.



Nam June Paik, "Buddha Reincarnated" (1994).

From: http://thebuddhistblog.blogspot.com/2007_09_01_archive.html

The meditation does not take place through a direct observation but through the electronic interface of a telephone, computer and modem. Buddha's body is intertwined with electronic components that symbolize his incarnation to a cyborg that catches his compressed surroundings by means of his super-positioned electronic senses. The physical world and our bodies have undergone transformation and compression into data distributed in cyberspace. The span of human arms and consciousness is greatly expanded by means of electromagnetic waves of limitless transmission range. In 1900, [Karl Schwarzschild](#) described an infinite space that can be partitioned into cubes each containing an exact identical copy of our universe, containing peculiar connection

properties so that if we leave any one cube through a side, then we immediately reenter it through the opposite side. This is actually the experience while watching a TV program or playing video or computer games.

The cyberspace surfer immersed in a Virtual Reality (VR) data sphere is equipped with VR headset including display, earphones, microphone, data suit and data gloves that connect him via computer to net hubs. His sensation is similar to the Scanning Electron Microscope operator who alters the tested matter by his sight and cognition. The surfer navigates within the electronic hyper-data that change while surfing. The surfer becomes an artist creating worlds and events, thanks to the responsive data sphere. The net surfer is anonymous, veiled by computer screen and headset hiding his identity, ethnic origin, age, and other characteristics that are no longer significant in cyberspace. His mind and senses are wholly isolated from the material world by means of electronic equipment; the physical environment has lost its past meaning. He remains alone; the other subjects, which accompanied him in the real world, become avatars. There is nobody besides himself; everything is data.

Jean Baudrillard argued that once one has passed beyond this point of detachment from the real, the process becomes irreversible [3]. We will no longer be able to find the objects and events that existed before the cyber immersion. We will not be able to find the history that had been before cyberspace. The original essence of art, the original concept of history have disappeared, all now is part of a real-time holistic data sphere inseparable from its models of perfection and simulation. The cyberspace compressed the time and space to a short circuit hyper-reality.

Cyberspace is more real than everyday life; computer games are more fascinating and alluring than the daily activities of school, work, sports or politics, and hyper-real theme parks like Disney World and VR environments are more attractive than actual geographical sites. The hyper-real symbolizes the death of the real, and the rebirth of holistic reality resurrected within a system of digital data. History, sociology, philosophy and art will never again be as before this point. We will no longer be able to know, ever, what art had been before it compressed itself in cyberspace. We will never again know what history had been before its aggregation in ultimate "[MemEx](#)", the technical perfection of real-time holistic data memory.

The permanent interconnection between both virtual and empiric worlds introduces a new way of being and new ontological philosophy. Karl Popper's theory of the [three worlds](#) is dramatically altered. Traditionally the classic world 3 of hypotheses can never influence directly the empirical world 1 of physical "objects" and vice versa. To achieve

this, the mediation of subjective reality, human thoughts, feelings etc. of world 2 is necessary. Cyberspace alters that fact. For example, a surfer may use an on-line internet application that controls and displays a mutation of DNA material or integrated circuits embedded in biological cells. A theory of the function of these circuits finds the way to world 3. Sensors (world 1) transmit feedback data from the electro-biological cells. While the cyberspace is functioning, there is a real-time direct feedback of world 1, world 3 and world 2 (the surfer). The electro-biological cells are now part of surfer's extended body and his nervous system. Within interconnected cyberspace, world 3 directly affects world 1, and world 2. Popper's original discrete, linear relation of world 1, 2 and 3 becomes holistic real-time hyper-sphere. This ontological shift affects artistic quantities and qualities that originally defined the artistic object. Artwork (world 1) can be controlled and altered by gadgets and real-time predictive software (world 3), causing art consumers to decide and act in the creative scene (world 2). These acts create a closed loop 'durée' of art, interconnecting the three worlds. The cyberspace can be comprehended as a container of Platonic ideas that symbolizes the Platonic triangles and tables that emerge from mathematical algorithms. The data can be manipulated, altered and copied by the demiurge (the surfer).

Eduardo Kac's installation "[Teleporting an Unknown State](#)" (1994-2003) creates an experience of the cyberspace as a holistic life-supporting system. In a dark room, a pedestal with earth serves as a nursery for a single plant seed. Through a video projector suspended above and facing the pedestal, remote surfers transmit light via the Internet to enable the seed to photosynthesize and grow in the dark environment. Another piece by Kac "[Genesis](#)" (1998/99) is a transgenic art installation that explores the network relationship between technology, society, ethics, biology and myths. An "artist's synthetic gene" was fabricated.



Eduardo Kac, "Genesis" (1998/99).
From: <http://www.ekac.org/geninfo2.html>

The gene contained a Morse - encoded verse from the biblical Book of Genesis. The verse reads: "Let man have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moves upon the earth." This verse implies

humanity's domination over nature. Morse code represents the dawn of the information age - the genesis of global time - space compression. The Genesis gene was incorporated into bacteria, which were shown in the gallery. Web surfers could control ultraviolet illumination in the gallery, causing biological mutations in the bacteria containing the Genesis verse. After successive manipulations, the DNA was decoded into Morse code, and into mutated verse in English. This art piece suggests a new holistic interactive data sphere where the ability to change the verse is a reciprocal symbolic gesture.

The cyberspace signals Roland Barthes' "[death of the author](#)", the disappearance of God and his hypostases - reason, science and law, while witnessing a [fuzzy logic](#) determination in holistic, time-space compressed cyberspace. Meaning and knowledge are not constant inherited values; rather, they gain new '[durée](#)' of meaning while we are immersed in real-time in the data hyper-sphere.

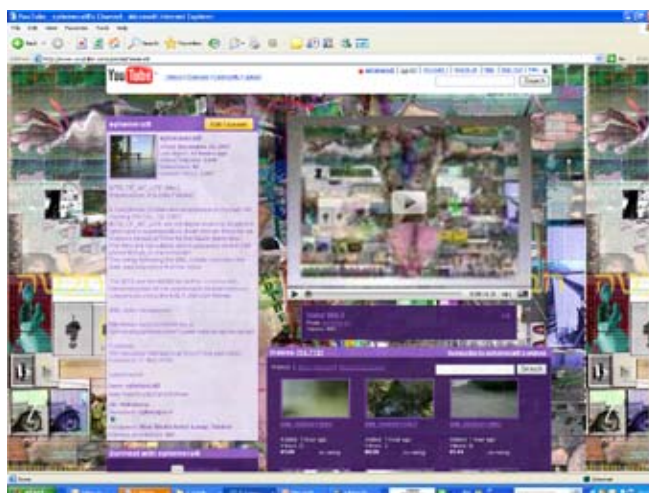
The Cyberspace data sphere is an extended dimension ([hyperbolic](#)) of the global geography and the physical body, experienced by the surfer, cyber-flâneur. The computer is a suitable metaphoric vehicle for consuming electronically compressed cyber time-space. The cyber-flâneur passes through compressed data space-time populated with avatars and virtual objects. As Charles Baudelaire's nineteenth century flâneur was a product of industrialization and modernity, a spectator of modern life in the rising urban sprawl, he is an upgraded product of New Media; the cyber- flâneur, an avatar - spectator of virtual data structures. He is an entity whose aim is to disappear in the time space of the digital city - a viewer who is everywhere and nowhere (superposition state) in possession of his anonymity. He is the one who experiences the fuzzy ontology of cyberspace (cyber-aura), an immediate time space where, as [Paul Virilio](#) argued "the moment of departure is compressed to that of arrival". The flâneur's 'durée' is an impression of endless movement captured by passing through the social space of modernity, and projected on his mind. Super positioned by electronic gadgets, anonymous cyber-flâneur motionlessly witnessing digital data bases through their natural propensity for omni spatiotemporal presence within the boundaries of cyberspace.

The evolution from being an artist-Flâneur in a slow world to a cyber Flâneur is a daily occurrence for most of us. For example, experiencing a series of paintings along the platform wall in a London Underground station, from a stationary train, has its banal outcome. The train passenger looking out of the window notices a single discrete frame of the series, and analyzes it according to traditional fixed semiotics. When the accelerating train leaves the platform, the series of frames advances creating a 'durée'

of a filmstrip with a varied meaning. The impact of the Doppler Effect is noticed as in Turner's paintings. While the passenger looks at his cellular phone display, or his Palm held computer, his sight and mind quantum jumps to a global superposition, via the singularity of net hubs.

The speed of the train leaving the platform released the passenger from the attraction of the old, slow discrete world dominated by a dichotomy between objects and subjects. The process of acceleration of the subject's consciousness increased through radio and television broadcasts, nowadays reached its peak at cyberspace where it propagates at the finite speed of light. This fact led to a dramatic turning point of the disappearance of the traditional author, artistic discrete object, and art consumer, and the birth of the cyber-aura witnessed by the cyber-flâneur. The meaning of cyber art and its cyber-aura according to traditional iconological and iconographical tools turned irrelevant. It is now valued according to a system of fuzzy logic, dealing with the concept of partial truth with values ranging between "completely true" and "completely false". The cyber-flâneur embedded with digital gadgets can render the chaotic data of cyberspace meaningful, from traditional to a holistic point of view, while carrying out electronic reading mediated by the central hub. That ability is similar to the physical phenomenon of the [Bose-Einstein](#) condensate of atoms of a substance uniting, at near absolute zero temperature, to a unique "super atom" that sustains super-fluidity and acts in symbiotic harmony. The passenger/surfer is witnessing cyberspace as Pierre Teilhard de Chardin's "[noosphere](#)", the "sphere of human thought" as it grows towards a greater integration and unification, culminating in the Omega Point - the maximum level of complexity and consciousness to which the universe seems to be evolving. [\[4\]](#).

The cyberspace demonstrates Heidegger's "[thrownness](#)", and Dasein being, when one always finds oneself already in a certain spiritual and material, historically conditioned environment (data-sphere), in the extended world, in which the space and time of possibilities is always unlimited. The cyber data noosphere is the domain of ephemeral8's "Bits of My Life" (BML 2008) video blog – "Impressions of a data Flâneur". Ephemeral8 systematically employs his cell phone, to create a video documentation "backup" of his daily life occurrences.



Ephemeral8, "Bits of My Life" (BML 2008).
From: <http://www.youtube.com/ephemeral8>

BML is his eternal "digital mummy" located in cyberspace superposition, ready and available for use by present and future generations. The videos are mostly as is, unedited, and directly uploaded from his cell phone to YouTube.com site. The Bits are the "meme" for further construction/deconstruction of net audiovisual mutual memory sequences consumed by other cyber-flâneurs. Google, YouTube and its partners become a giant hub, dominating cyber-culture, global networked economy, surfers' language and behavior. The Cyberspace is an extension of ephemeral8's foot, eye skin and nervous system positioned on torus-like topology. The hyper-sphere is the stage for ephemeral8's "[Digital Skin 2](#)" video bricolage of his endless cyber voyages, embedding digital personal data as an extra data layer of Google Earth and Sky. His body and mind extension are part of holistic terrestrial and cosmic digital data strips produced the satellites and space telescopes. The three-dimensional universe contains discrete objects and subjects, imploded to an [Orbifold](#), uniting cyberspace, physical space and cognitive space as digital data displayed on the computer monitor. The orbifold topology drastically transformed the traveling experience. Cyber Flâneur's superposition existence positions him in no time on each location on the torus envelope. "Digital skin" is a cosmic virtual extension of Marcel Duchamp's unfinished "[Big Glass](#)" piece, described in the videos' sound track by Duchamp's own voice, digitally compressed. The departure and arrival of locations on the art piece are compressed to a singularity.

The unification of Cyber Flâneur and cyber data sphere is the subject of an interactive network piece, "1 year performance video" (2004), by M. River & T. Whid. A live video

stream of the two artists reveals their acts in two isolated cells. Every surfer entering the site witnesses the two artists according to his local time; for example, if the entrance to the site is in the morning hours the surfer will witness typical morning activities such as eating breakfast, exercising, reading the newspaper etc. Surfing late at night, will reveal the couple while sleeping.



M. River & T. Whid, "1 year performance video" (2004).

From: <http://turbulence.org/Works/1year/index.php>

The network installation transfers the burden of closed cells detention from the artists to the surfer. The performance will be completed when the surfer finishes one year of accumulated participation, then he will gain a digital copy of the piece's data base. The surfers do not know definitely, whether the video stream is live, or recorded, or if the artists are real people or avatars. The server control program chooses the footage to be shown, according to the time of entrance, the number and frequency of previous transitions, and the duration of each video clip. The control ability designates the server computer, the network and the program as powerful Artificial Intelligence art creators, exactly like the two artists. The two cells containing the artists are identical in size, painted white, and lighted by neon. Even the contents of the rooms are identical: a wooden bed, clothes hangers, a shelf, chair, table, thermos for drinks, towel, and toiletries. The two rooms look as though they have a common virtual wall. There is an option for opening, in parallel, a number of windows of the work, and follow the artists in different situations at the same time. As the local time of the surfer's computer changes, it thus affects the two artists' activities, converting the surfer from passive spectator to an active director of the happenings on the screen. The surfer is situated in the center of the electronic [Panopticon](#), while the computer screen serves as a peephole for the global data institution. The same is true for the two artists while using their laptops in their cells. The mind and gaze of the surfer activates the two artists, and vice versa. Without the actions and gaze of the surfers, the piece will not be realized. The observers and the observed become bits of data in hyperspace, condensing its bits to a super-atom, or holistic conscious entity.

In conclusion, throughout art history since the industrial revolution, artists have tried to perform time - space compression by means of their art. The artistic creation reveals the powers at work in the universe, and enables art consumers to be united. For that

purpose artists used new philosophical ideas and accelerating technologies to extend their body and consciousness to a cosmic span.

The cyberspace epoch fulfilled this impulse by turning attention away from physical body extension, toward virtual structures of global digital data. In cyberspace artist and each surfer are privileged to transform their mind and physical body to cyber superposition. This revolution led to a radical change in the definition of artist, art object and art consumer. Reality has again become, as in the distant past, a mixture of the soul, dream, trance, and myth, together with the material tangibility of daily existence. The cyclic concept of time-space that dominated prehistoric culture, and were exchanged for logical, linear, Western concepts, returned to its mythological starting point. All are now particles of "pure artistic" sphere, gathering at the singularity of holistic consciousness in cyberspace hubs, the eternal habitat of art from now on.

[1] Harvey, David (1989). *The Condition of Postmodernity*. Blackwell, Mass.

[2] Paul, Valery (1991). "Pieces sur l'art, Paris conquete de l'ubiquite" in Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction". Hapoalim publishing Tel Aviv.

[3] Baudrillard, Jean (1992). "Pataphysics of Year 2000". Originally published in French as part of Jean Baudrillard, *L'Illusion de la fin: ou La greve des evenements*, Galilee: Paris, 1992. Translated Charles Dudas, York University, Canada.

<http://www.egs.edu/faculty/baudrillard/baudrillard-pataphysics-of-year-2000.html>

(31.1.2007).

[4] Pierre, Teilhard de Chardin (2005). *The Phenomenon of Man*. Nimrod publishing. Tel Aviv.