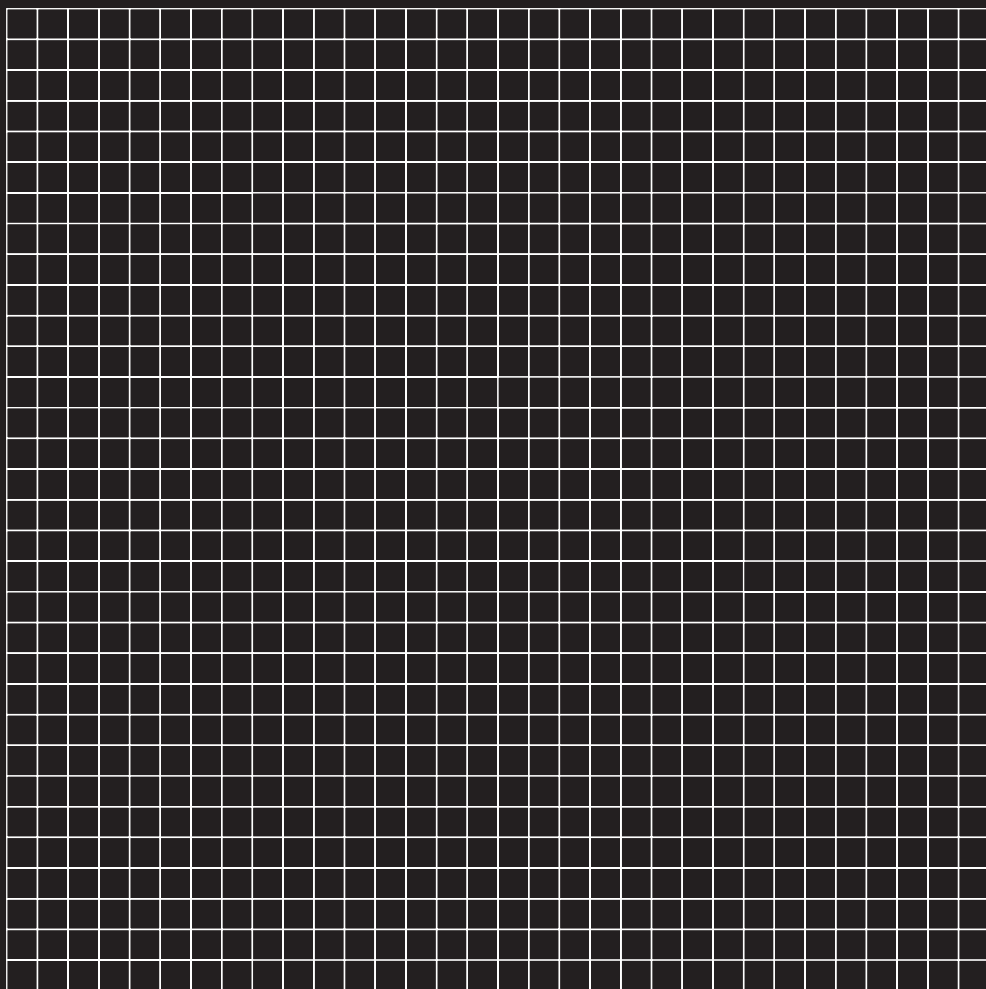




NETworking

**Net Art From the
Computer Fine Arts Collection**

Emergency Exit | New Media Center
Haifa Museums, Haifa Museum of Art

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Computer Fine Arts Collection**

Haifa Museums, Haifa Museum of Art
Director General, Haifa Museums: Nissim Tal
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Emergency Exit
New Media Center

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Net Art From the
Computer Fine Arts Collection

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Exhibition

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Foreword

"NETworking," the first Israeli museum exhibition devoted to Net art, is concerned with cutting-edge digital art. This exhibition presents works from Doron Golan's Computer Fine Arts Collection – which has been functioning since 2001 as an online archive of Net art accessible to all Web users. The works in this exhibition give expression to new conceptualizations of time, space and behavior in cyberspace, while examining the fundamental qualities of this new art form. These works, some of which may be defined as "activist," cast a critical gaze on the ways in which government authorities and various economic bodies make use of the Net.

This exhibition at the New Media Center is one of a series of exhibitions centered upon the rich themes and varied trends that shape contemporary video art and digital media. The development of this artistic medium over recent decades reflects the spirit of contemporary culture in a range of expressive forms, and makes evident the importance of the New Media Center's consistent commitment to this subject.

The exhibitions in this series have all been curated by Ilana Tenenbaum, Founding Curator and Director of the New Media Center. In 2006, Ilana Tenenbaum received the Ministry of Science, Culture and Sport's Curator Prize, in appreciation of her curatorial work and research for "Videstoria." This pioneering series of exhibitions systematically explored the history of the projected image. The study and presentation of digital media provides another significant chapter in this important research.

Nissim Tal
Director General
Haifa Museums

Introduction

"NETworking" illustrates the New Media Center's deep commitment to presenting new developments in technology-based art, and to examining their social and cultural dimensions.

Centering upon the recent development of electronic art, this exhibition presents works from the Computer Fine Arts collection of artist Doron Golan, one of the first collectors of online art. The works included in "NETworking" highlight a number of the fundamental qualities that characterize Net art, which substitutes software programming for manual processes of artmaking: the visualization of data; open-code access and connectivity; hacking and online voyeurism, which involves critiques of government authorities and economic powers; the creation of online behavioral codes, and the negotiation of cyberspace from various perspectives.

In the first essay in this catalogue, "The Third Front," the works included in the exhibition are contextualized in relation to the historical development of New Media. This essay also examines similarities between the pioneering phase of video art in the 1960s and 1970s and between the pioneering works of Net artists beginning in the 1990s; it characterizes Net art as the "third frontier" in the development of technology-based art, and describes the history of computer-based art forms in general, and the development of Net art in particular. This discussion concludes with a brief examination of Israeli Net art.

In the second essay in this catalogue, "Networked Collectibles," Christiane Paul – Adjunct Curator of New Media Arts at the Whitney Museum of American Art – examines the wide range of artistic endeavors for which the Net serves as both a platform and a medium. Paul, who has been following the development of Net art from its inception, points to the obstacles that prevent it from being received by the institutional art world. Underscoring the importance of the Computer Fine Art collection, she comments on six of the projects included in the exhibition, and on the wide range of online artistic activities they point to.

I would like to extend my thanks to Doron Golan for giving us access to this group of works from his collection, and for his commitment to this exhibition; to Christiane Paul for her important contribution to this catalogue; and to Galit Eilat, director of the Israeli Center of Digital Art, Holon, for her helpful comments.

By undermining the principle of "rarity" upon which the museal economy is based, these immaterial art works challenge the institutional art world. We all share a similar sense of urgency concerning their inclusion in the contemporary art discourse.

Ilana Tenenbaum

Curator and Director

New Media Center, Haifa Museum of Art

The Third Front

Constructing the Imagined Future in the Present Tense

Ilana Tenenbaum

The exhibition “NETworking” offers the possibility of coming closer to the new front line of electronic art, and, to new means of expression made feasible by technological advances throughout the previous century. It also dwells on ways these developments led to changes in thought structures and aesthetic perceptions.

One speaks of a tradition of striving for the new, and of artists aspiring through visual means to express new possibilities in a changing world. The first front line of conceptual and artistic developments outlined in this overview is that of the avant-garde of the early 20th century. The second front in the campaign for the concept of the ‘new’ was created with the birth of video, and the new visual order that grew from its invention in the 1960s and 1970s. The third front is Net art, which originated in the 1990s.¹ The military terminology is not accidental, but a conscious choice applied to emphasize the continuous battle waged by artists working in the conceptual field of the ‘new’, who have, in every era, utilized the physical tools of their time to construct the imagined future.

Lev Manovich, one of the foremost theoreticians of the new media, and himself a Net artist, outlines the path for the processes of change that we have witnessed leading from the “New Vision” to the creation of “New Media”. He proposes a direct link between avant-garde techniques – montage, collage, surrealism – and the structure of computer programs as perceived by the public during the 1990s. He claims that a radical aesthetic approach became standard technology that, in turn, enhanced and empowered its visual perception. He explores the appearance of the concept of the ‘new’ during the 1920s of the last century as regards to photography, cinema, design, and other artistic media, and also the recurrence of the ‘new’ in the 1990s, no longer referring to a specific medium but rather to the media in general.² He proposes that one should view the implementation of avant-garde theories not only as the motive for

the creation of the modern and the post-modern (as reflected, for example, in MTV aesthetics) but also as their realization in man-machine interfaces through which post-industrial work is being produced. In fact, he views the comprehensive reasoning of post-modernism as the realization of the early avant-garde vision in computer software.³

When Manovich came to characterize the new media, he suggested a three stage chronological progression; the first stage being the avant-garde of the 1920s; the second, the art of the 1960s and 1970s, which he terms the “Meta-media society”, since the accumulation of reams of recorded materials required the development of efficient storage and preservation methods, rather than the continued invention of new tools. During the early 1980s is seemed as if society ceased for a while in its search for the ‘new’, since it faced a cultural space overloaded with quotations, references, and recycled media content. The third stage is the distribution process which took place in the 1990s, when it was no longer necessary to invent new ways to represent the world. Once solutions were found for problems of storing the representations that were accumulating, the emphasis then shifted to their distribution.⁴

1 The term “NET.ART” is said to have originated from a technical glitch that occurred when Slovenian artist Vuk Cosic opened up email that was jumbled up and the only legible words to emerge were “NET.ART”. The term quickly spread among Internet communities and was extended to describe a variety of everyday activities. Net.art was used by enthusiastic artists, and electronic art critics through graphic communications, e-mail, texts, and images. It became an Internet based discourse defined by links and the exchange of ideas.

2 Lev Manovich “Avant-Garde as Software”, in Digital Culture: Virtuality, Society, and Information, Y. Eilat Van-Esen ed. [Tel Aviv: HaKibbutz HaMeduhad Publications, 2002], p. 174; Yael Eilat Van-Esen, “Digital Culture: Introduction”, Ibid., p. 62-63.

3 Manovich, pp. 190-191.

4 Ibid., pp. 192-196.

These developments led to the creation of a new media, the essence of which is described by Christiane Paul in an article published in this catalog. According to her, the 20th century gave birth to video and the tools that derived from it: Multimedia and Hypermedia – names that were given to digital forms of art – as well as Intermedia, a term describing the relationship between video and digital technologies. In the 21st century the term New Media has come to encompass various forms of digital art such as music, interactive installations, with or without net components, programming art, and Internet based art.⁵ New Media art marks the interaction between two major categories: art and technology, and media art. Art and technology is a category that includes electronic art, robotic art and new technologies not necessarily related to media, while media art includes video art, broadcasting art, and experimental cinema.⁶ John Ippolito presents another viewpoint by pointing out that the World Wide Web (WWW) is only one of the many components of the Internet. There are many other online protocols such as e-mail, messenger, video-conferencing, sound files, text only environments, online communities, and online art forms serving to embed the viewer's actions into their interfaces. They prove, he maintains, that the Internet is a social mechanism.⁷

Net art expose us to virtual attitudes, telepresence, online art forms and events, architecture, music, design, and space and time as an artistic practice. Investigation of the fundamental properties of these works reveals activities that include the creation of tools – such as data visualization, narrative environments, databases; the provision of a channel for social and political intervention – whether through net hacking or criticism of establishments, corporations, and government institutions; and democratization of the means of production – including new ways of expropriating art from the past into online art, open source software, and generative software whereby continuously streaming images; and the study of consciousness – cover the mapping of relations between language and memory, identity and space.

During the past decade, and increasingly since the year 2000, Net art has become a new front in the cultural transformation of relationships between Man and Machine. The digital object is a non-material that deconstructs the world into separate measured packages and associates conscious matters with information by means of its ability to change, and by its modular nature. It develops a dynamic multiplication of variables, where a near-

identity exists between consumer/viewer/user and creator. While modernist culture products were once based on the principles of the industrial revolution, the infrastructure of the New Media is grounded in the post-industrial culture, where simulation has replaced the copy.⁸ Simulation does not symbolize, describe, or inform but demonstrates, embodies and presents the virtual as an alternative world ready to be experienced. The artist and the viewer form a collective entity which in turn generates a process of accumulation, where the significance of the original artist is diminished and the center of gravity is shifted in favor of the activity of the producer-consumer collective.⁹

From New Vision to New Media

Study of the exhibits in the “NETworking” exhibition, suggests the necessity of a double survey, that of the history of the New Vision, and that of the New Media that was created in its wake. Or, perhaps one should say that what is required is the recital of the overlapping stories of contemporary electronic art and of the development of the tools that made it possible.

Preliminary experiments in developing television technology were made as early as the 1880s. Inventors of the time struggled with problems that required solutions on the path to develop a communication system that could broadcast images. In 1884 the German engineer Paul Nipkow created an early version of a mechanical television that offered a preliminary solution to scanning problems thereby laying the foundations for the 1930s invention of a television set. In 1833 there was an initial attempt to build a machine that would store and process data: Charles Babbage’s “Analytical Engine”, which included many features characterizing the modern computer. Processing and storage instructions were recorded on punched cards, and the data was to be held in the engine’s memory store. This machine was designed to have the capability of storing data and making decisions as to the execution order of various instructions. Babbage’s invention was eventually implemented when the first computer was developed – approximately a century later.

Just as the role of television changed from an information to an entertainment medium, so did the orientation of the computer altered, and theoretical discussions about it. Consideration of a machine with only computing abilities moved on to the discussion of one that possessed

the ability to simulate, navigate, interact, and communicate.¹⁰ Once the computer was connected to the Internet, its primary function changed and it became a distribution force for established forms of culture: music and films, MP3 files, fax and telephone services, e-mail and online chat. The computer was thus transformed into a major communication channel, becoming a machine that could be used simultaneously for person-to-person communication, one person communicating with millions of people, as well as a machine combining both private and public media.¹¹

As part of my activity in the New Media Center, I have positioned the development of video art within its historical context and proposed connections with modernist avant-garde movements that were also a starting point for Net art.¹² The introduction of the aesthetics of the machine into the reality of early 20th century life led to a visual change in the environment. This change was brought about through a synthesis between fine art, craft, and architecture, and from the establishment of connections between science and art. Three modernist movements from the early 20th century influenced the inception of art in the electronic age: Futurism, Dadaism, and Constructivism. The Futurists, among them Giacomo Balla and Filippo Marinetti, sought to describe continuous motion and attempted to express the emotional and psychological states associated with the initial enthusiasm for technology. Dadaists were concerned with exposing the absurd qualities of the machine as a criticism of industrial civilization; Marcel Duchamp, a central figure in French-American Dadaism, started to implement machine aesthetics on the human image. The Russian Constructivists emphasized the artist's need to be technologically skilled, perceiving him as a member of a productive working class in a modern industrialized society. In typological terms, the advance towards technological art during the second half of the century can be summarized by definitions given by Dario del Bufalo in his catalog text for the 42nd Venice Biennale: 1940s – Electronic art; 1950s – Information art; 1960s – Chance art; 1970s – Computer graphics art; 1980 – Synthetic image art¹³. By the end of the 20th century, a transformation had taken place from television, cinema, and video to hypermedia, virtual reality and cyberspace.¹⁴

Many qualities can be discerned connecting the second front, associated with the birth of video, and the third front, associated with the development of Net art. Many of the investigations into Net art appeared in earlier representations

of the pioneer works of the 1970s. Not unlike what happened during the 1960s and 1970s, the special character of New Media led to the formation of artist collectives that relinquished the uniqueness of the individual artist. Assorted groups of skilled professionals: artists, musicians, and engineers, worked at creating a progressive vision and critical expressions. Among the early collectives in the video field were The Video Freex, the Raindance Corporation, and Global Village. These collectives, anti-establishment, equal rights advocates, documenters of counter-culture, provided an alternative vision of history through the medium of television.¹⁵ Similarly, New Media artists come together not only because their projects require a

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- 5 Christiane Paul, "Renderings of Digital Art", Leonardo 35, no. 5 (2002), p. 471.
 - 6 Mark Tribe and Reena Jana, New Media Art (London: Taschen, 2006), p. 7.
 - 7 John Ippolito, "Ten Myths of Internet Art", Leonardo 35, no. 5, (2002), p. 486. John Ippolito is an artist, lecturer, and a new media author. Among the exhibitions he curated were those at the Guggenheim museum, New York and the ZKM museum, Karlsruhe, Germany.
 - 8 Moshe Elhanati, "The Practice of Art in an Age of Digital Copying – Thoughts of a Cultural Optimist", Studio 132, (2002), pp. 49-50.
 - 9 Ibid., pp. 54-55.
 - 10 Eilat Van-Esen, pp. 29-30.
 - 11 Manovich, p. 178.
 - 12 The first generation of video artists was extensively surveyed in the Videostoria series, which follows the development of video art in Israel and its links to the international field of video. The first chapter of the series: Video Zero Communication Interferences: the Projected Image – the First Decade (2003), conceptualizes and describes video as the realization of technological developments that started at the end of the 19th century, as well as the cultural revolutions associated with the television, which share a common technological basis with video. The second part: Video Zero Towards Cinema: the Projected Image – the First Decade (2004), focuses on the link between the early video works and avant-garde cinema. The third chapter, Video Zero Live Acts Performing the body (2006): the Projected Image – the First Decade (2006), concludes the mapping of links associated with the emergence of the video medium during the 1960 and the 1970s and points to a variety of links between early video art and between installation art and conceptual art practices.
 - 13 Frank Popper, Art of the Electronic Age (New York: Harry N. Abrams, 1993), pp. 10-23.
 - 14 Timothy Druckrey, ed., Electronic Culture: Technology and Visual Representation (New York: Aperture, 1996), p.12.
 - 15 Marita Sturken, "Paradox in the Evolution of Art Form: Great Expectations and the Making of a History", in Illuminating Video: An Essential guide to Video Art, D. Hall and S.J. Fifer eds. (New York: Aperture Foundation, 1990) pp.109-110.

wide range of skills, qualities and artistic abilities, but also because of their ideological principles concerning cooperation and the opening up their work for the benefit of everyone. An example of this can be seen in the **RSG Carnivore Project** on view in the exhibition. One of the first communal web sites was jodi.org which achieved near cult status in the New Media world, created as collaboration between Dirk Paesmans and Joan Heemskerk, who placed the mechanism of the computer at the front of the stage. Many of the works on the site expose programming elements which are usually hidden, such as HTML code¹⁶; the intention being that the jumble of letters and numbers will become the main content.¹⁷

Yet another similarity is the fact that art as the product of the artist's own hand is replaced with images and projected electronic images generated by means of various machines. In New York in 1965, Nam June Paik showed his work **Magnet TV** in which modifications were made by the viewers themselves. Using magnets that created electromagnetic waves, they transformed on-screen images to abstract forms.¹⁸ The deformation of images in this work illustrated the mesmerizing power of media imagery.¹⁹ In Net art this is seen in the development of software by artists such as Mark Napier shown in this exhibition, who has created dynamically changing digital paintings.

New Media art is distinguished among other characteristics by the development of practices and techniques based on chance, and on the construction of notations by means of repetitive structures. In this context John Cage was a pioneer of later inventions in the fields of Net art and open code in the space between artificial life and DJ culture. Another example that can be viewed as foreshadowing the first web browser, is Paik's **Random Access** (1963, Wuppertal). In this piece he glued to the wall some fifty strips of pre-recorded audiotape and invited the audience to create their own sound compositions by running a magnetic playback head connected to a speaker over the tapes at any speed or direction. This work demonstrated how a linear medium can be cut up and split over space.²⁰

An expression of interpretive systems that provide meaning by using New Media can be seen in the work of John Baldessari when he employs an encyclopedic sorting procedure. His work **Inventory** (1972) combines a visual representation of fuzzy, hard to identify, objects, with verbal descriptions given in his own voice.

Baldessari placed a collection of various objects in front of the camera, sorted according to size, from smallest to largest, and then photographed them in black & white close-ups. This method of photography robbed the viewer of the ability to identify an object when it was disassociated from a meaningful verbal description. This gap between an object and the ability to perceive it on various levels is also presented to us by David Rokeby in his work **The Giver of Names** (from 1991- present) where viewers are invited to place an object on top of a pedestal in front of a camera. With the object in position, the computer scans its image, analyses its outline characteristics, and projects this process employing a life-size video projection.²¹

One of the prominent features of New Media art is the change in perception of continuous time. This can be clearly seen in John F. Simon Jr's work **Every Icon** (1997), shown in this exhibition, which invites the viewer to watch a real time process which may take millions of years to run its course. An early piece creating a process in real time right in front of the camera is Terry Fox's **Children's Tapes** (1974). Fox illustrates basic principles of physics using household items: a spoon, a cup, an ice cube. He uses a single camera, without any editing, so that the duration of the video work is the same as the duration of the event. Focusing on events in real time creates tiny segments of dramatic tension.

The gap between technological inventions and their implementation in art is decreasing. Nam June Paik was obliged to wait two decades after television was invented before he could produce art for broadcast television. Net art, on the other hand, developed alongside digital technology. Less than a decade after the first graphics web browser appeared, online art had become a movement engaging many spectators worldwide. As early as 1993, Net artists were engaged in intense and critical interaction through text-based projects. Discussions were then taking place in email-based communities, and, with the growth of the Internet as a significant economic and social phenomenon, online art became fertile ground for discussions on the future of art in the 21st century.²²

Art as Computer Expression

Viewing the development of computer-based art reveals that in 1961 John Whitney already used an analog computer to create a film called **Catalog**.

Using time-lapse photography, this film showed moving intertwining curves as if they were the organic forms of flowers opening their petals. The amazing visual results he obtained required the utilization of fundamental shapes derived from fields of hand-drawn dots fed into a machine that was based on military technology.²³ In 1970 Jack Burnham curated an exhibition in New York entitled **Software**.²⁴ There he showed works related to radio, telephone, photocopying, television, and to microfilm cards used for storing information in libraries.²⁵

Information and Communication art was produced in the late 1970s and continued to develop during the 1980s. Among the major projects of that period, three examples can be noted: **The World in 24 Hours** created by Australian artist Bob Adrian in 1982 for Ars Electronica in Austria. Artists and groups throughout the world participated in this work via fax, phone, and slow-scan TV, after Adrian called each location at midnight local time to invite them to take part. The project ran from 12:00 noon Europe Central time on September 27 and ended at noon the following day.²⁶ The "Electra" exhibition, shown in Paris at the Museum of Modern Art in 1984, presented various trends using electronics in art. It demonstrated how electronic usage revealed the desire or the need for medium of video which combines light, electricity, motion, conceptual potential, and immediacy. The "Les Immateriaux" exhibition of 1985, curated by Jean-François Lyotard, illustrated how new computer and internet-based technologies are certain to change the relationship between Man and the world. Additional significant commentaries came from Terry Winograd and Fernando Flores, two pioneers of artificial intelligence, concerning their perception of the influence of Heidegger's writings on understanding the computer as part of the tool box we use to face our existence.²⁷ Communication art of the 1980s, as mentioned, offered a visual expression to the connective qualities of the world. During the 1990s a transformation took place, moving from an awareness of an interlinked global system, to the language of codes and programming, with the computer's qualities as a connectivity machine developed into a cybernetic perception.²⁸

In the early 1990s the Internet enabled communications without bureaucracy. It became the center of intense online activity including a large public eager for Net art. Small groups of left-wing intellectuals, technology gurus, subversive thinkers and various artists congregated in online centers like Rhizome, The thing, and Nettime.

Europe, especially Eastern Europe and Russia, were vital centers for the early years of the Internet as an artistic medium. The development of a 'post-communist neo-liberal' society in Eastern Europe during this time was characterized by an openness of the mass media and pluralistic politics. In the eyes of many local artists the Internet had a Utopian quality about it. Artists and computer professionals founded media centers and established computer learning programs making it easier for large numbers of people who were enthusiastic to be a part of the new world of international communities.²⁹

In 1994 the Web was still small and comprised mostly personal home pages dealing with hobbies, personal stories, advertisements, and the promotion of online communities. Among the prominent sites that were launched at the time were jodi.org, irrational.org and adaweb. In 1994, The British systems analyst Heath Bunting, founder of irrational.org, organized the Internet project **Kings Cross Phone-In**. It consisted of transmitting the phone numbers of the 36 public telephones

16 HTML = Hyper Text Markup Language

17 Rachel Greene, "Web Work: A History of Internet art", *Artforum* 38, no. 9, (May 2000), p. 164.

18 For further discussion of Paik's magnet works, see: Gene Youngblood, "Nam June Paik: Cathode Karma", *Expanded Cinema* (London: Studio Vista, 1970) pp. 302-308.

19 David Ross, "Truth or Consequences: American Television and Video Art", in *Video Culture: A Critical Investigation*, J. Hanhardt ed. (Rochester, New York: Visual Studies Workshop, 1986), p.170. This work is mentioned as Gregory Moore's choice in the "Digital Salon", New York, 2002, see note no.26.

20 Ippolito, p. 489.

21 Paul, p. 484.

22 Ippolito, p. 485.

23 Youngblood, pp. 208-210.

24 The term Software derived from the use of soft textured punched cards.

25 Jack Burnham, "Real Time systems", *Artforum* 8, no.1 (1969), p. 49.

26 Gregor Muir, "Past, Present, and Future Tense", *Leonardo* 35, no.5 (2002), p. 499.

27 Eilat Van-Esen, pp. 45-46.

28 Annick Bureau, "Art de la communication art des reseaux", *Art Press*, 285, (Dec. 2002), pp. 42-43.

29 Lev Manovich wrote an article entitled "Behind the Screen" discussing the special influence of Russian Net artists. According to him, the visual legacy of screens can be placed side-by-side with montage theories, and their use can be seen as a renewed "war". Visitors to the sites are encouraged to experience and create frames within frames while experimenting with new possibilities of combining text and images, Greene, pp. 163-164.

near London's Kings Cross train station to several mailing lists requesting people to phone in to them at certain times and dates. The ringing phones created a musical intervention that broke into the daily routine of a busy, big city traffic intersection. People passing by lifted up the phones and spoke to callers from all over the world. The practical uses of net based art were then understood as functioning in a public sphere that materialized both socially and audibly.

In 1996 the Internet and its technology became a significant cultural and economic phenomenon offering important financial opportunities. On the one hand, Net artists wanted to define their movement by publishing false headlines concerning the state of the Internet, media art, and links to art net projects. The headlines had a declarative tone, for example: "Art without social involvement is impossible" and "Today, there is no such thing as abroad". On the other hand, their concern about main stream and mega-corporations taking over the Internet caused several artists, like Bunting and Alexei Shulgin, to textually reorganize the public sphere of the Internet through 'hypertext' projects. Mapping out their personal texts on the Internet they managed to dramatize the subjective experience of negotiating a highly commercialized public sphere.³⁰

Towards the end of the 1990s several artists worked under borrowed identities and faked email addresses publishing texts on art net sites under the names of critics Timothy Druckrey and Peter Weilbel. A new mailing list called 7-11 was set up under the alias Keiko Suzuki, dedicated to the illogical and the exaggerated and functioning as a high-volume list. People who entered this site several times a day encountered volumes of junk mail, confusion, amusing or annoying messages. The most prominent case of identity theft and net hacking was that of Slovenian artist Vuk Cosic who used an available robot program to copy the Documenta X site shortly before it closed down.³¹

The artistic activity on the net also included social critical content. One example is the activity of the British group Mongrel who released in 1998 an impressive shared software product named **Heritage Gold**, based on the well known graphics application Photoshop. In their application the toolbar and the commands were replaced with terms related to social class and race ("Define Breed", "Paste into the Host Skin", "Rotate World View") that enabled users to add, modify, decrease, and diversify the ethnicity and status of their

own self-image. This software brought to the fore issues that technology aggressively silences. It exposes the manner in which software and computers reproduce, support, or simply distorted unjustified social and economic relationships. Similarly, it is important to note feminist activity on the net. For example, the Australian women's group VNS Matrix, was an important carrier of feminist issues, publishing their "Online Feminist Manifesto" as early as 1991. Another woman artist who published internet projects on internet and garnered several awards is Russian artist Olya Lialina. Her 1996 work **My Boyfriend Returned from the War** contained a cinematic narrative of doomed love while dealing with physical beauty and the intimate aspects of relationships.³² Exploration of feminine identity can also be found in the work of an anonymous artist who set up a site under a fictional and provocative identity, that of a girl supposedly 13 years of age. Mouchette, the name given to her, alludes to the heroine in a 1967 Robert Bresson film. People entering the site encountered the image of a sensuous looking flower with flies and ants crawling all over it, as well as a portrait of a sad young girl, with whom they were invited to make interactive contact.³³

From 1999, or thereabouts, Net art started to produce a different effect, its artists affected by the Internet's rising popularity and immense collaborative power. Many of them started to use the commercial electronic capabilities of Ebay, or to build their own online galleries, finding plenty of commissions and new sources of funding that validated and supported Net art based projects.³⁴ In recent years we can also see a new art forms based on computer games such as those created on the Second Life (SL) website, a three dimensional virtual world (opened to the public in 2003) created by Linden Labs Inc. This site is used both as a platform to produce artworks, and also as subject matter. This year, the Chinese pavilion at the Venice Biennale, presented, for the first time in an international exhibition, a Second Life art work by the artist Cao Fei. For this occasion, She created an avatar, an animated digital representation, named China Tracy, who flies away on a global journey to actual, well known geographical locations, 'realized' in the virtual world.

However, acceptance of Net art is still problematic among established cultural institutions. It is almost never collected, and the subject does not appear on academic agendas, such as art history departments.³⁵

An additional barrier to the acceptance and acquisition by museums is the fact that Net art is highly vulnerable to technological advances. Its non-material qualities make it dependent on software and hardware that is becoming obsolete at ever faster rates. A number of cultural organizations have come together in the United States to form protection mechanisms for this new art, including the Guggenheim, the Rhizome site in New York, the Walker center in Minneapolis, and the Berkeley Museum of Art. Among the methods for preservation of New Media we find screenshots of websites, the replacement of old HTML pages with new ones, simulations of obsolete instruments, and the recreation of old works by new methods.³⁶ The Guggenheim Museum, for example, acquires online art for its permanent collection alongside painting and sculpture under the preservation strategy known as the "Variable Media Initiative". It also collects information about the possibility of converting work by utilizing contemporary technology when the software and hardware becomes obsolete.³⁷

NETworking

The Computer Fine Arts Collection amassed by Doron Golan is an online archive of Net art works accessible to every surfer. The collection started in 2001, and in 2003 an archival agreement was signed with the Cornell University Library, New York, to preserve and catalogue these works. To date, his collection comprises 170 projects. The exhibition, which is based on this collection, includes a number of investigations into the fundamental qualities of Net art.

Several works are based on well known paintings from the previous century and upgrades them using software. John F. Simon Jr.'s **Every Icon, version 92** (1997) is a piece of software art, alluding to a sketch by Paul Klee, that displays every possible combination of black and white squares on a grid. A work by the MTAA group **OnKawaraUpdate (V2)** (2007), recreates a series of works by On Kawara replacing the craft of painting with software, generating an image of a similar style on an internet page, so that the date on it changes every day. Three other works relate to the act of painting and replace the artist's handwork with a computer generated product created interactively by the viewer using the mouse. Interactive works by Dutch artist Elout de Kok like **Zabnulfier, v.08** (2004), engage in a dialog with different painting

styles of the previous century, like Constructivism and the New York School. In his **Mirella Variations** (2000), Stanza explores this subject from another direction, generating digital paintings in which the viewer is invited to immerse himself in their colors and sounds and actively participate in determining the flow of the shapes in the paintings they form. The 'moving paintings' of Mark Napier also allow for viewer participation. For instance, in the work **Skywhite** (2005), a drawing appears of the Empire State Building, New York, an image that the viewer can rotate to create numerous painterly layers related to different points in space.

Two other works deal with visualization of virtual spaces. One is **Stress** (2002) by Ed Burton that simulates a virtual space where simple shapes made up of lines and dots appear to be influenced by the pull of gravity. A different view is offered by Austrian artist Lia with her interactive piece titled **10** (2001). This work is composed of a complex system of visual and spatial parameters that move in accordance to different time units and rhythms combined with sound, all controlled by the viewer.

Another aspect of this exhibition is a visual illustration of data flow, which encourages the perception of the computer's mechanism as both a machine and a social construct. Yoshi Sodeoka's work **Ascii Rock** (2003) uses ASCII encoding to recreate by means of lines and shapes the imagery of rock band performances. Alex Galloway created a visualization of data flow in the network from a completely different angle in his work: **Carnivore – Personal Edition Zero Client** (2001). From the aspect of social criticism regarding control and tracking systems, he created software that appeared to be similar to the FBI's DCS 1000 system nicknamed Carnivore, used for online wiretapping. Unlike that program, Galloway's version is open source software that allows free access both to the code and to the visual aesthetics controlling the data flow.

A discussion of the value of the socio-ecological meaning of collaboration is evoked in Andy Deck's **Wildlife Offline** (2007). A work that invites viewers

30 *Ibid.*, pp.164-165.

31 *Ibid.*, p. 167.

32 *Ibid.*, pp. 165-167, 190.

33 Tribe and Jana, p. 66.

34 Greene, p.190.

35 Oliver Grau, *MediaArtHistories* (Massachusetts: MIT Press, 2007), pp. 1-3.

36 Tribe and Jana, pp. 24-25.

37 Ippolito, p. 487.

to add images of endangered species to his collection in order to preserve them through calling up existing images found on line. An invitation to collaborate also surfaces in the work of "Boredomresearch" **Wish (V.2)** (2007) illustrates their interest in creating an environment that enables interactive viewer participation. Users type in their wishes on a keyboard, and these are added to a wish tree positioned at the center of the piece.

Two more exhibits forego the use of images, utilizing an environment based strictly on text and sound. **Becket's Bounce** (2002), a dramatic text-film that deals with alienation, sex, and violence with reference to experimental cinema and to concrete poetry is by the duo Young-Hae Chang Heavy Industries; while Thomson & Craighead's **Beacon** (2005) deals with concrete poetry. **Beacon** acts as a silent witness taking global snapshots of search requests from the entire world, and then relaying them at regular intervals as an infinite sequence of concrete poetry. Coming from another direction, is Mark Tribe's work **Revelation 2.0** (2002) which uses the CNN site like a ready-made, removing the text and leaving only the images. In this way, Tribe blurs the voyeuristic qualities of the news site.

The concepts and ideas that developed from Net art such as the connections between virtual communities, the inventory of time dependent spatial figures, flickering with the rhythms of data flow on the Internet, give expression to current reality and the mutual relationships between art and the technology. The works in this exhibition offer the visitor the opportunity to experience a new kind of art and to reflect on the unique qualities and challenges it presents.

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A short survey of the organizations dealing with digital media in Israel accompanies the presentation of "NETworking", the first Israeli museum exhibition devoted to Net art to be held in Israel. It is important to note the activities of the Israeli Center for Digital Art established in Holon in 2001. Here, out of a sense of deep social commitment, the development of digital art is studied and exhibited. The first book on the subject written in Hebrew dealing with the implications of digital technologies on the social fabric of our lives is Digital Culture: Virtuality, Society, and Information, edited by Yael

Eilat Van-Esen and published in 2002. "Video Zone 2", Tel Aviv, in 2002, also included a Net art exhibition curated by Yael Kanarek. In 2003 the Israel Museum opened the exhibition "Liquid Spaces" in the design department, curated by Alex Ward. On display were interactive works by five Israeli artists and designers living in New York. In 2004, "Ma'arav", an online magazine dedicated to art, culture, and media was launched. In the same year, we established the New Media center at the Haifa Museum of Arts. Earlier this year Miri Segal held an exhibition titled "Just a Second, Life" at Dvir Gallery, Tel Aviv, where a movie was shown, documenting a journey taken to find love and meaning in the virtual world of "Second Life". Parallel to the gallery opening, an opening was held in the virtual space in "Second Life".

Beside the investigation of the development of Net art, I would like to cite curator Yona Fisher's exhibition "Concept + Information" shown at the Israel Museum in 1970 as the first local discourse on data and information systems, serving as a starting point for discussion and illustration of virtual space within the Israeli context. One can also point to the **Jerusalem River Project** by Joshua Neustein, Gerard Marx and Georgette Batlle. This was a work dealing with the illustration of an imagined space as an environment simulation using a sound device. Two more audio projects not be overlooked in that exhibition are those by Michael Druks, **Information on Reaction** who recorded the entrance of people to an exhibition hall, and replayed the sounds two minutes later; and one by Yossi Mar-Chaim, **Intercom**, who installed intercom devices in certain locations within The museum. Recording the voices and replaying them allowed the audience to experience a multi-spatial presence, realize the splitting of time and space while at the same time illustrating the fracturing of "real" time, issues that the present time calls upon us to relate to through a wide-ranging and fascinating discussion.

Networked Collectibles

Christiane Paul

Since its inception in the early 1990s, the World Wide Web has been used as a platform and medium for artistic practice. While the online art world has been expanding ever since and the Web has supposedly been upgraded to version 2.0 with its social networking services (from Friendster and FaceBook to Flickr and YouTube), there have been only few venues in the “physical” world – museums, galleries and other cultural organizations – that have chronicled, presented, and supported Internet art.

The term Internet art or Net art has been used to describe art that uses digital technologies as a medium and is being created for, stored on, as well as distributed and presented over the Internet. After almost 15 years, Net art has become a broad umbrella for multiple forms of artistic expression that often overlap. There is browser-based art that has been created for viewing in the browser window, ranging from artist-written, generative software to animation; there are telepresence and telerobotic projects that establish telematic connections between remote places (for example through the use of Webcameras) or allow manipulation of remote places through robotic devices; there are performance and time-based projects that take place as actions within a specific time frame during which they can be experienced by Web visitors worldwide; there is hypertext that experiments with the possibilities of non-linear narrative, consisting of segments of texts that are woven together through electronic links and allow users to choose multiple paths; there are netactivism or “hacktivism” projects that use the network and its possibilities of instant distribution and cloning of information as a staging platform for interventions, be they support of specific groups or a method of questioning corporate and commercial interests; there are alternative browsers and search engines, which rewrite conventional ways of exploring the Web; and there are artist-created games or game modifications and patches that can be used in commercial online game worlds.

In its early days, Net art was understood as an art form that would be accessed via a computer from the privacy of one’s home or (unauthorized or not) from the office. The growing ubiquity of wifi networks and mobile devices, from PDAs (Personal Digital Assistants) to mobile phones, has increasingly led to the perception that the Internet is everywhere. (At the same time one needs to acknowledge the fact that large portions of the world are not connected to the Internet and access may be restricted for various reasons, from economic ones to censorship). Today, art for the Internet is being created for multiple platforms, and a work may consist of a website as well as components that are created for and distributed via mobile phones or PDAs. The attempt to squeeze all this work into one neatly defined category quickly becomes futile.

The integration of Net art into art institutions and the art market is a topic that has been hotly debated since the art form began to register on the radar of the art world. After all, part of the appeal of Net art (to artists and audiences) is that this art is accessible to anyone (with network access), anywhere, anytime: Net art is not dependent on institutions for its presentation and can successfully circumvent the traditional art system. When it comes to the traditional model of the art and museum world, the value of art is inextricably connected to economic value. Yet, this “scarcity equals value” model does not necessarily work when it comes to Net art, since it is accessible to anyone with a network connection and not only when the museum decides to mount it in a gallery. At the same time one could argue that owning and hosting the source code of a work on one’s server constitutes a form of ownership.

The fact that Net art currently does not play much of a role on the art market may also be one of the obstacles on its way to larger acceptance in the art world. So far museums as well as private collectors have not made serious commitments to

Net art, and Doron Golan's Computer Fine Arts Collection remains a noteworthy exception and shining example. Golan early on started to research and support Net art, and his expertise in the field enabled him to build a collection that includes many of the most distinguished practitioners of the medium. The works differ in their scope: while some of them are well-known works, others are smaller pieces specifically created for the collection – creative gestures that capture and represent an artist's "signature" and style.

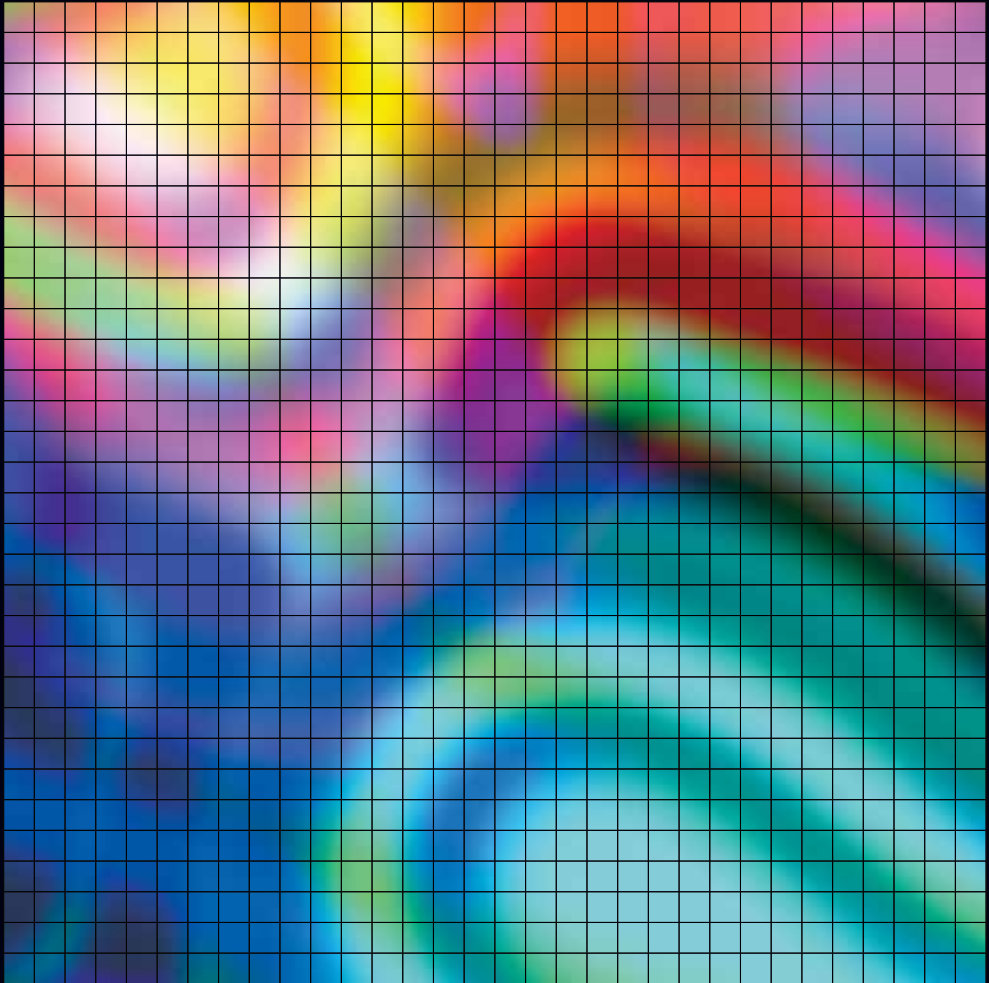
The "holdings" of the Computer Fine Arts collection are a microcosm of Net art that perfectly illustrates the breadth of artistic practice on the Web. While Young Hae Chang Heavy Industries' **Beckett's Bounce** (2002) is a text animation that explores the border zone of animated typography, visual poetry and music, **Ascii Rock** (2003) by C404 / Yoshi Sodeoka is a brilliant example of the genre of ASCII art, which creates still images and videos entirely out of alphabetic and numeric characters (ASCII stands for American Standard Code for Information Interchange, a common format for text files in computers and on the Internet that represents alphabetic and numeric characters as binary numbers). Lia's **10** (2001) and John F. Simon, Jr.'s **Every Icon** (1997), on the other hand, are two radically different examples of generative software, where (artist-written) algorithms with some degree of autonomy result in the creation of a work of art. Lia's software explores the aesthetic possibilities of graphic form and movement in a generative process. By contrast, Simon's work is deeply conceptual: consisting of a small grid of 32 by 32 squares (the standard number of pixels for an icon), the software is written to cycle through every possible variation of an icon by making each square of the grid either black or white. In various ways, **Every Icon** points to the essence of the digital medium, using the icon, as a symbol of the digital image's qualities, to illustrate the seemingly infinite possibilities of generatively constructing images.

Other pieces in the collection illustrate different artistic approaches to network processes. Thomson & Craighead's **Beacon** (2005), a minimalist comment on electronic networks as communication systems, is an automated software beacon that grabs selected live web searches as they are being made around the world, broadcasting them on the screen at regular intervals. **Beacon** presents to its visitors a real-time global data portrait of people's interests. A very different portrait of network processes is constructed in the piece **RSG-CPEOC-1** (2002), which is part of the larger project

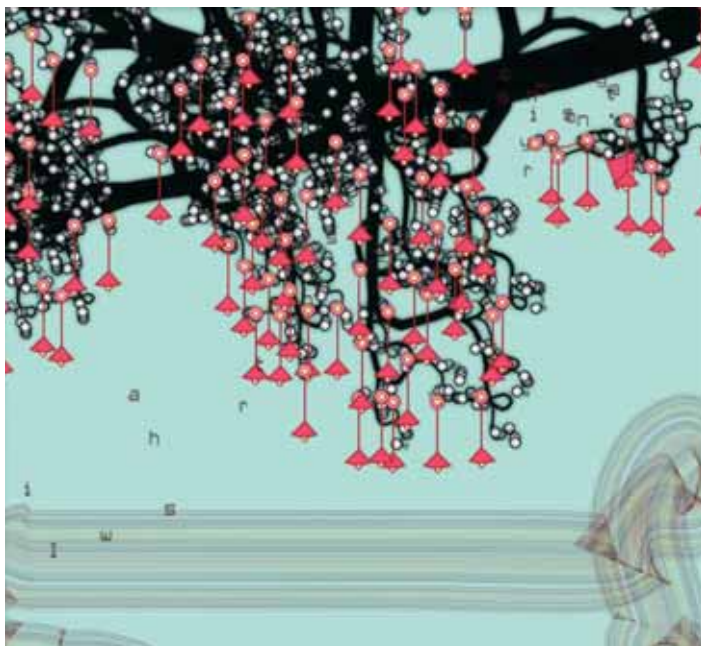
Carnivore (2001–present) by Alex Galloway and the artists' collaborative RSG (Radical Software Group). **Carnivore** is inspired by the software DCS1000 (nicknamed "Carnivore"), which is used by the FBI to perform electronic wiretaps and search for "suspicious" keywords. This electronic wiretapping is done by means of so-called packet-sniffing programs that monitor network traffic and "eavesdrop" on the information exchanged. One part of the Carnivore project is the Carnivore Server, an application that performs packet-sniffing on a specific local area network or local computer and serves the resulting data stream. The other part consists of "client" applications created by numerous artists, which interpret the data in visual ways. In the case of the RSG-CPEOC-1 client – the first Carnivore client ever created – the surveillance packets are printed to the screen left-to-right, top-to-bottom. **Beacon** and the **Carnivore** project represent two different perspectives on network data, one being a social portrait of people's interests, the other capturing the more sinister aspects of surveillance and monitoring.

The previously mentioned six projects give only a glimpse of the richness and depth of the many projects that make up the Computer Fine Arts collection. Computer Fine Arts is the largest private collection of Net art to date, a rarity that deserves to be exhibited widely and will hopefully set an example for institutions and private collectors around the world.

Christiane Paul is Adjunct Curator of New Media Arts at the Whitney Museum of American Art and the director of Intelligent Agent, a service organization dedicated to digital art. She has written extensively on New Media arts, and her book Digital Art was published in July 2003. She teaches in the MFA computer arts department at the School of Visual Arts in New York and the Digital+Media Department of the Rhode Island School of Design.



Catalogue



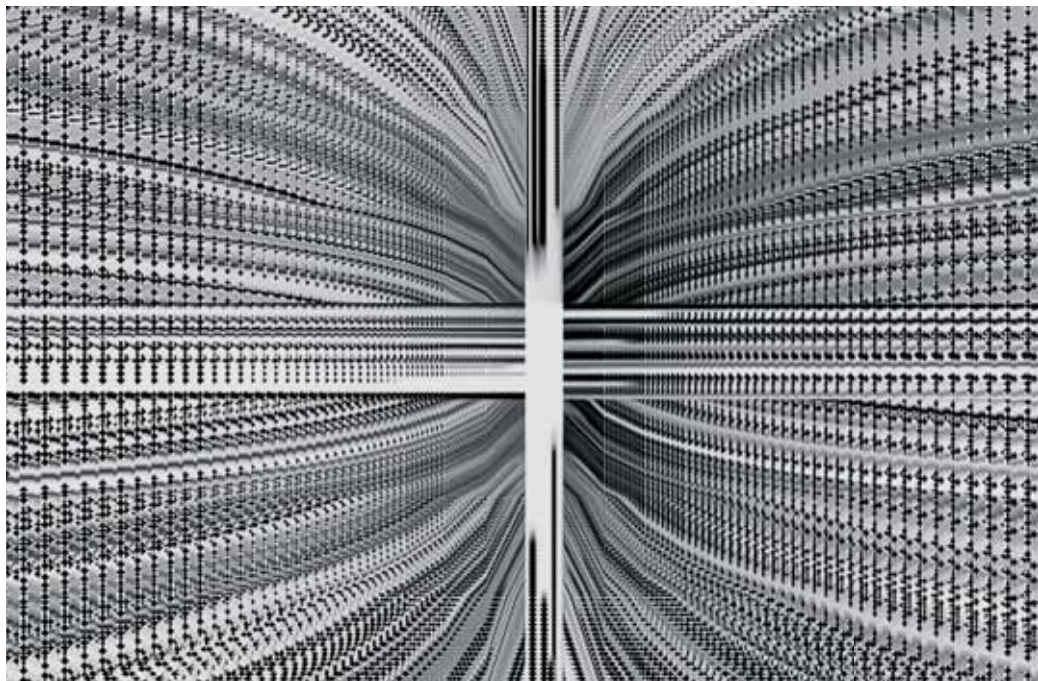
מחקרשעמום [ויקי איסלי ופול סמית], משאלה, מהדורה מס' 2, 2007, מסד נתונים MySQL, שפת תכנות PHP, תוכנת עיבוד Boredomresearch (Vicky Isley and Paul Smith), **Wish, Edition No. 2**, 2007, Database, MySQL, PHP, Processing

מחקרשעמום

"מחקרשעמום" ("boredomresearch") הוא שמו של פרויקט מתמשך המתבסס על שיחוף פעולה בין שני האמנים הבריטיים ויקי איסלי ופול סמית', המשמשים כחוקרים במרכז הלאומי לאנימציות מחשב באוניברסיטת בורנמות' באנגליה. עבודתם **משאלה, מהדורה מס' 2** (2007) מדגימה את העניין שהם מגלים ביצירתן של סביבות אינטראקטיביות, המאזכרות תפיסות של היזון חוזר בתחום הבינה המלאכותית. השניים מציעים חלופות לחיים העכשוויים עתירי הטכנולוגיה באמצעות שימוש בערכים מיסטיים מהמזרח הרחוק; במקרה זה, הם שואלים אמונה מקובלת במזרח שלפיה משאלות מתגשמות באמצעות חלייתן על עץ (בדומה לפתקים הנחבטים לסדקיו של הכותל המערבי). לאחר שהמשתמש מדפיס את משאלתו על המסך, הוא מקליק על העכבר בכדי "לחלול" את האייקון דמוי-הפעמון "המכיל" את המשאלה על אחד מענפי העץ. כך בונה פעולת הצופים למעשה את הדימוי ויוצרת אותו כזכר חזותי מצטבר המשמר את משאלות לבם.

Boredomresearch

"Boredomresearch" is the name of an ongoing project based on a collaboration between British artists Vicky Isley and Paul Smith, who are both research fellows at the National Center for Computer Animation at Bournemouth University, England. Their work **Wish, Edition No. 2** (2007) illustrates their interest in creating interactive environments, which relate to conceptions of feedback in the context of artificial intelligence. These two artists offer an alternative to the technologically oriented character of contemporary life by alluding to mystic values from the Far East; in this case, they have borrowed a familiar Eastern belief according to which wishes come true when they are hung on a tree (not unlike the notes inserted among the cracks in the Western Wall). After the user types his wish on screen, he clicks the mouse to "hang" a bell-shaped icon "containing" the wish on one of the tree branches; the image is thus formed out of an accumulation of visual traces, which bespeak the viewers' heartfelt wishes.



ליאה, 10, 2001, תוכנת מולטימדיה ואנימציה

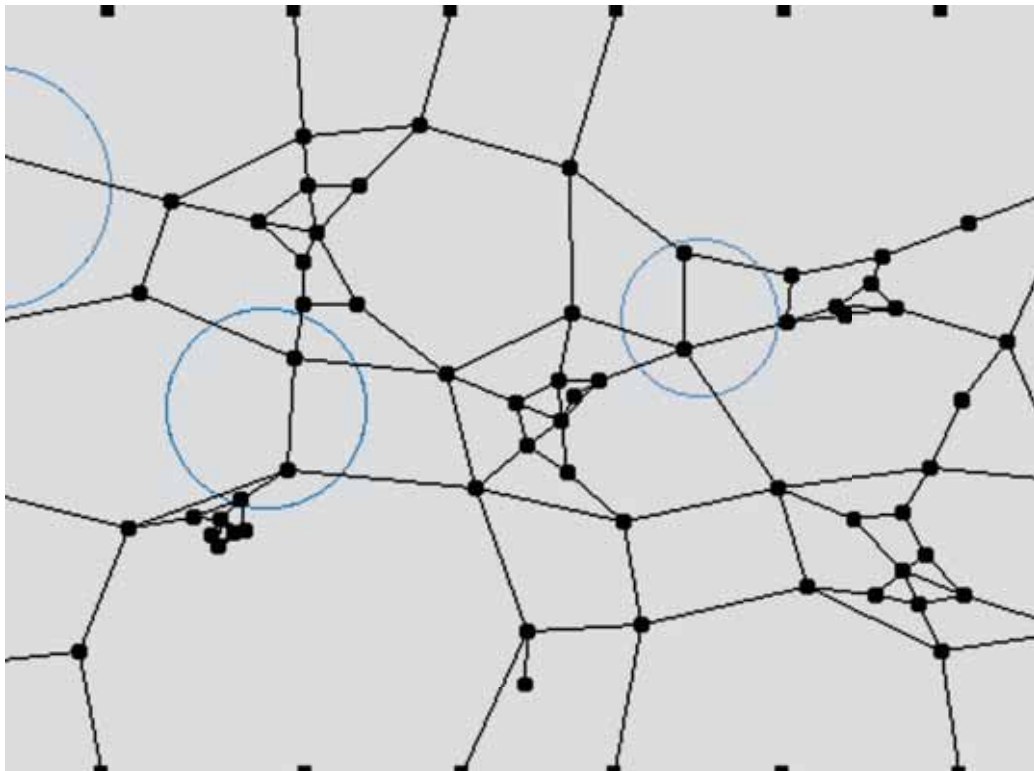
Lia, 10, 2001, Director Shockwave

ליאה

ליאה, אמנית אוסטרית הנמנית עם דור החלוצים של אמני התוכנה והרשת, עוסקת באמנות דיגיטלית, במיצב ובסאונד משנת 1995. עבודותיה המקוונות מחברות מסורות של רישום וציור עם אסתטיקה של דימויים אלקטרוניים ואלגוריתמים, והן מתאפיינות ברוח מינימליסטית ובזיקה לאמנות מושגית. עבודתה 10 (2001) האחרונה בסדרה בת עשר עבודות, מציעה מערך מורכב של פרמטרים חזותיים ומרחביים הנעים במקצבי זמן משתנים תוך שימוש בסאונד. הצופה, המפעיל את העבודה באמצעות שימוש באפשרויות השונות, מייצר דגמים שונים היוצרים מעין "ארכיטקטורה נעה". העבודה, המוקרנת בחלל, מייצרת מרחב דמיוני, מעין מנהרה השואבת את הצופה לתוכה בשטף צורתי. ליאה זכתה בפרס מצוינות, ארס אלקטרוניקה, 2003, ועבודותיה מוצגות במוזיאונים ובגלריות ברחבי העולם.

Lia

The Austrian artist Lia – one of the early pioneers of software and Net art – has been creating digital art, installations and sound works since 1995. Her Internet works combine various traditions of drawing and painting with the aesthetic of digital images and algorithms. They are characterized by a minimalist quality, and by an affinity with conceptual art. Her work 10 (2001), the last in a series of ten works, is composed of a complex system of visual and spatial parameters that move at different rhythms as they are combined with sound. Viewers operate the work by choosing among different possibilities, thus producing various models that form a kind of “mobile architecture.” Projected in space, this work creates an imaginary sphere – a kind of tunnel filled with a flow of forms that draw the viewer onto its interior. Lia won the Net Excellence award of distinction at the Prix Ars Electronica 2003; her works are exhibited in museums and galleries worldwide.



אד ברטון, מתח, 2002, תוכנת ג'אווה

Ed Burton, **Stress**, 2002, Java

אד ברטון

מתח (2002), עבודתו של אד ברטון, אמן ומתכנת בריטי, בנויה ממערכת של נקודות המחוברות באמצעות קווים. עם העברת הנקודה ממקום למקום על ידי הצופה, הקווים נמתחים ונדבקים זה לזה ויוצרים צורות חדשות כיצור בעל איכויות אורגניות. העבודה, המתבססת על עיקרון הנדסי הקרוי מערכת שליטה ודינמיות, מייצרת גופים באמצעות שפת התכנות ג'אווה, ואלו נעים בחלל הווירטואלי על פי חישוב פיזיקלי המדמה את חוקי הגרביטציה. אד ברטון המשמש גם כמנהל מחקר ופיתוח של קבוצת סודה הוא יוצרו של המשחק Sodaconstructor, שנוצר בשפת ג'אווה, אשר זיכה אותו בפרס BAFTA לאמנות אינטראקטיבית בשנת 2001.

Ed Burton

British artist and software specialist Ed Burton's work **Stress** (2002) is composed of a system of dots connected by lines. As the viewer moves each dot from one place to another, the lines stretch and stick together to create new forms – as if they were an organic creature. This work, which is based on an engineering principle called Control and Dynamic Systems, uses Java language; the forms it creates move through virtual space according to physics calculations that simulate the laws of gravity. Burton, who is Soda company's research and development manager, is also the creator of the game Sodaconstructor, which was designed with Java software. In 2001, he won the BAFTA Interactive Award for this game.



יושי סודאוקה, אסקי רוק, 2003, פורמט קידוד סונדר ASCII+MIDI, תוכנת מולטימדיה QuickTime

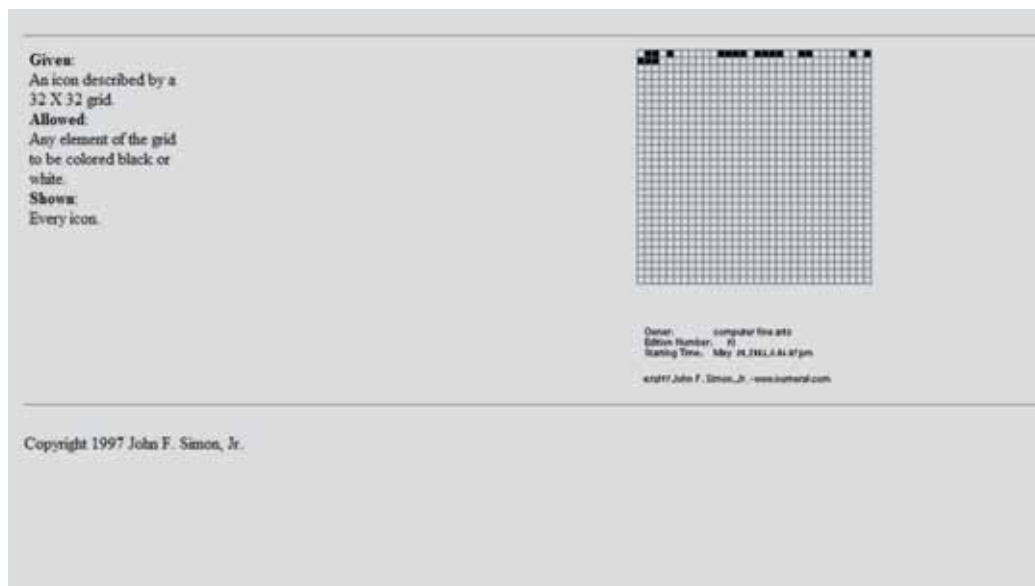
Yoshi Sodeoka, **Ascii Rock**, 2003, ASCII+MIDI, QuickTime

יושי סודאוקה

יושי סודאוקה – אמן, מעצב ומוזיקאי אמריקאי – משתמש בעבודתו **אסקי רוק** (2003) בשפת הקידוד אסקי, שעם הופעתה ב-1963 אפשרה ליצור ייצוג של חווים טקסטואליים ממוחשבים באמצעות פורמט של קידוד מספרי. במחשבים המוקדמים, שהיו חסרים יכולות גרפיות, היה נפוץ השימוש בחווי האסקי ליצירת דימויים חזותיים שונים על הצג. סודאוקה משלב שפה זו עם תוכנת MIDI, שהומצאה ב-1983, וכך יוצר תבנית צורנית גרפית המהרגמת קטעים טלוויזיוניים דוגמת נאומו של הנשיא בוש, ובמקרה זה – סרטי וידאו של הופעות רוק. בדומה לאופן שבו נאם ג'ון פייק, מחלוצי אמנות הווידיאו, הצרין את הדימוי האלקטרוני, סודאוקה מחליף את הדימוי המצולם בדרם של נתונים חזותיים המעניקים ביטוי מופשט ודינאמי לדימויים מוכרים מן התרבות הפופולארית. הוא משתמש בדימוי המצולם כחומר גלם המפורק מהמשמעויות הנרטיביות שלו ואשר מבטא באופן חזותי את האיכויות העכשוויות של העולם המקוון. עבודותיו של סודאוקה נכללות, בין היתר, באוספי המוזיאון לאמנות מודרנית, סן פרנסיסקו, ובמוזיאון לדימוי נע, ניו יורק.

Yoshi Sodeoka

Yoshi Sodeoka – an artist, designer and musician who lives in the U.S. – uses in his work **Ascii Rock** (2003) the encoding language known as ASCII, which first came into use in 1963. This language is composed of a series of numbers that are equivalent to letters and symbols, thus enabling different computer systems to communicate by means of texts. Early computers, which lacked graphic capabilities, frequently employed ASCII to create visual imagery out of letters and numbers. Sodeoka combined this encoding language with MIDI software (launched in 1983) in order to create a graphic template that “translates” televised segments such as a speech given by President Bush, or – in this case – video images of rock concerts. Much like Nam June Paik, the pioneering video artist who gave new form to electronic images by using a magnet, Sodeoka replaces photographed images with a flow of visual data that “converts” mass cultural figures into a stream of data; in this manner, he casts the online world into visual form. Sodeoka’s works are featured in various collections, including those of the San Francisco Museum of Modern Art and the Museum of the Moving Image, New York.



ג'ון פ. סימון ג'וניור, כל איקון, מהדורה מס' 92, 1997, ג'אווה

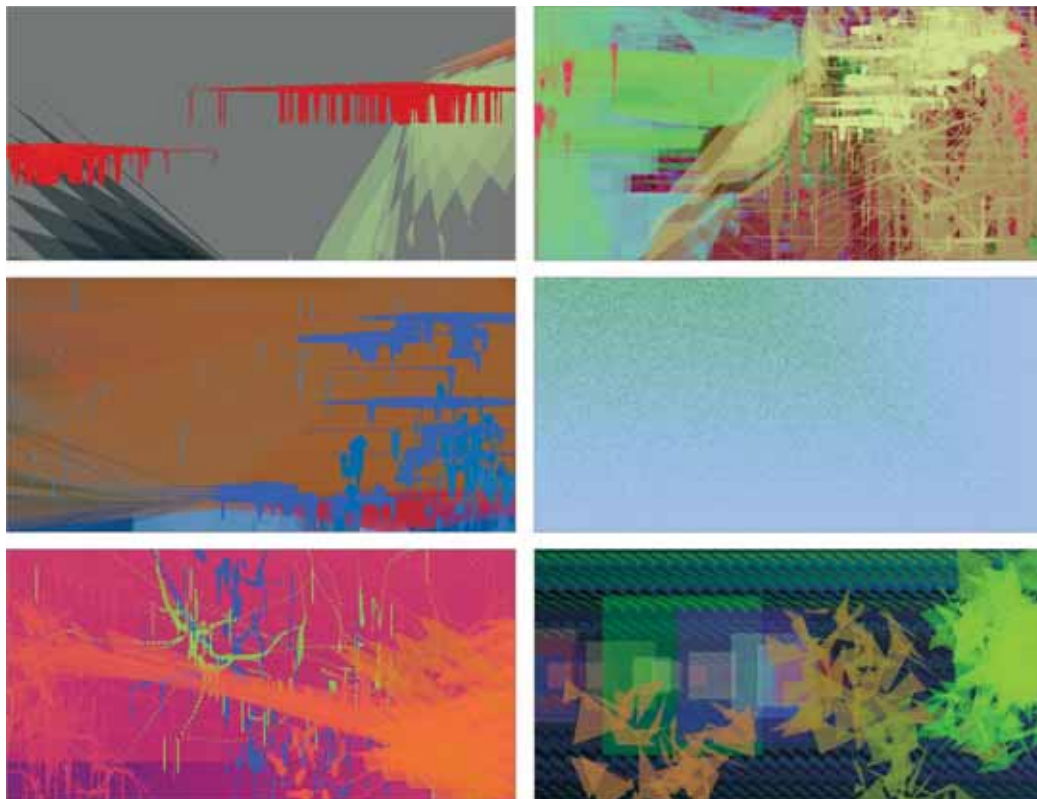
John F. Simon, Jr., **Every Icon**, Edition No. 92, 1997, Java

ג'ון פ. סימון ג'וניור

כל איקון (1997), עבודתו החלוצית של ג'ון פ. סימון ג'וניור, בנויה מגריד של 32 X 32 ריבועים המופיעים על המסך, הפועלת באמצעות שפת התכנות ג'אווה אפלט (תוכנה שפועלת בדפדפן), ומציגה הבהוב של כל שילוב אפשרי בין צבעי השחור-לבן בגריד. על פי החישוב, מילוי של כל אייקון ומיצוי כל אפשרויות הצירוף המתמטיות עתיד לקחת כ-10,298 שנים, והופעתו של דימוי מובחן עתיד להופיע רק לאחר כמה מאות טריליון שנים. המצאתו הבסיסית של סימון מבטאת היטב את יסוד הזרימה, ההשתנות וההצטברות של המרחב הווירטואלי, והיא מתייחסת לתהליך שעליו הצביע פול קליי בספרו **ספר מחוות פדגוגי** (1925), שבו הוא מבצע ניסיון למלא צירופים שונים בגריד של ריבועים. עבודתו של סימון נכללת באוספים רבים דוגמת המוזיאון לאמנות מודרנית, ניו יורק, מוזיאון הגוגנהיים, ניו יורק, מוזיאון וויטני לאמנות אמריקאית, ניו יורק, ומוזיאון לוס אנג'לס.

John F. Simon, Jr.

John F. Simon, Jr.'s seminal work **Every Icon** (1997) is composed of a 32 x 32 square grid that appears on screen. Using Java software, it presents a constantly flickering image programmed to represent every possible combination of black and white-colored squares by means of a mathematical formula. According to calculations, the presentation of all possible icons based on these combinations would last approximately 10,298 years; the appearance of a distinct image would take hundreds of trillions of years. Simon's basic invention gives clear expression to the principles of flow, change and accumulation that shape the virtual sphere. This invention also relates to the process described by Paul Klee in his 1925 book Pedagogical Sketchbook, by which Klee attempted to create various visual combinations within a grid of squares. Simon's works are featured in numerous collections, including those of the Museum of Modern Art, New York; the Guggenheim museum, New York; the Whitney Museum of American Art, New York; and the Los Angeles Museum.



אלוט דה קוק, זאבנולווייר, מהדורה 08, 2004, תוכנת עיבוד

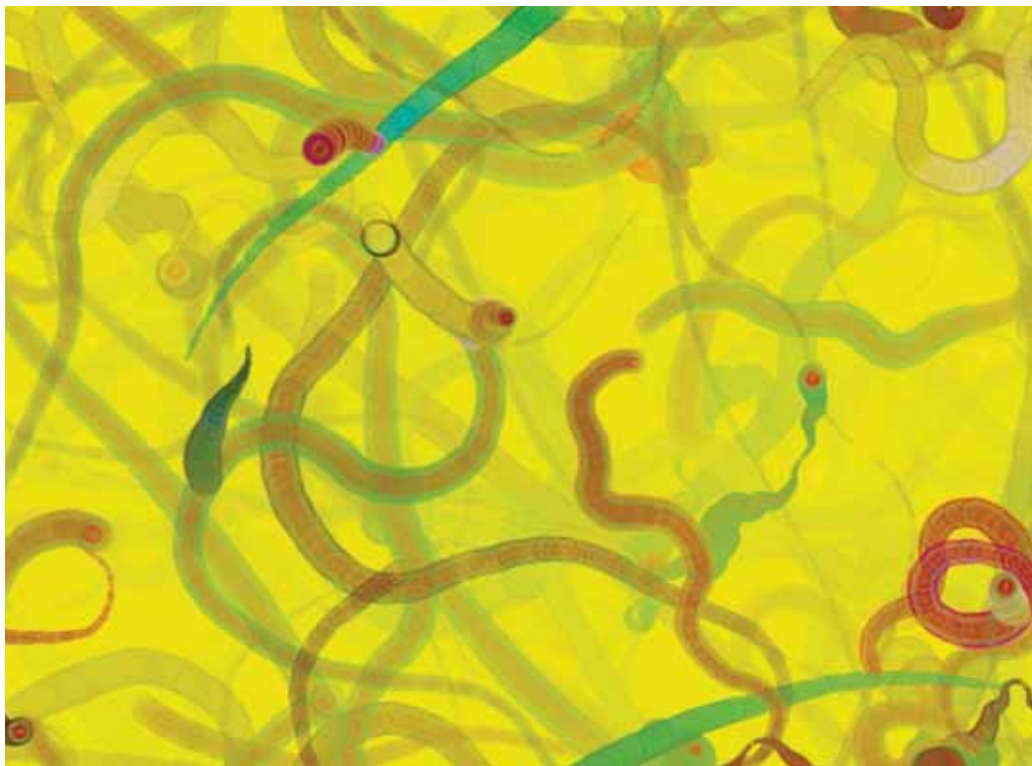
Elout de Kok, **Zabnulpv V.08**, 2004, Processing

אלוט דה-קוק

אלוט דה-קוק, אמן הולנדי שפיתח תוכנה העוסקת בדימויי מחשב בהתבסס על חוקיותה הפנימית של שפת התכנות, יוצר עבודות אינטראקטיביות אשר מתחבבות עם סגנון של תנועות מרכזיות במהלך המאה ה-20: הבאוהאוס, הדה-סטיל, הקונסטרוקטיביזם והאקספרסיוניזם המופשט של אסכולת ניו יורק. העבודה **זאבנולווייר, מהדורה 08** (2004) מופעלת על ידי הצופה, המוזמן להרכיב ולפרק את הדימוי באמצעות מספר "סגנונות ציוריים" על פי בחירתו. פעולת העכבר מפעילה זרימה אנרגטית של צורות וצבעים אשר כמו נורים ונשפכים על גבי המסך. דה-קוק מתאר את עבודותיו כמעין מפגש בין הקונסטרוקטיביזם של שנות ה-20 לבין "ארכיטקטורה דיגיטלית" עכשווית.

Elout de Kok

Dutch artist Elout de Kok creates generative and interactive works that dialogue with the styles of major 20th century art movements such as the Bauhaus, de Stijl, Constructivism and Abstract Expressionism. The work **Zabnulpv, V.08** (2004) is activated by the viewer, who may compose and disassemble the image into any one of a number of "painterly styles." The mouse's movement activates an energetic flow of forms and colors that seem to erupt and pour onto the screen. De Kok describes his works as an encounter of sorts between 1920s Constructivism and contemporary "digital architecture."



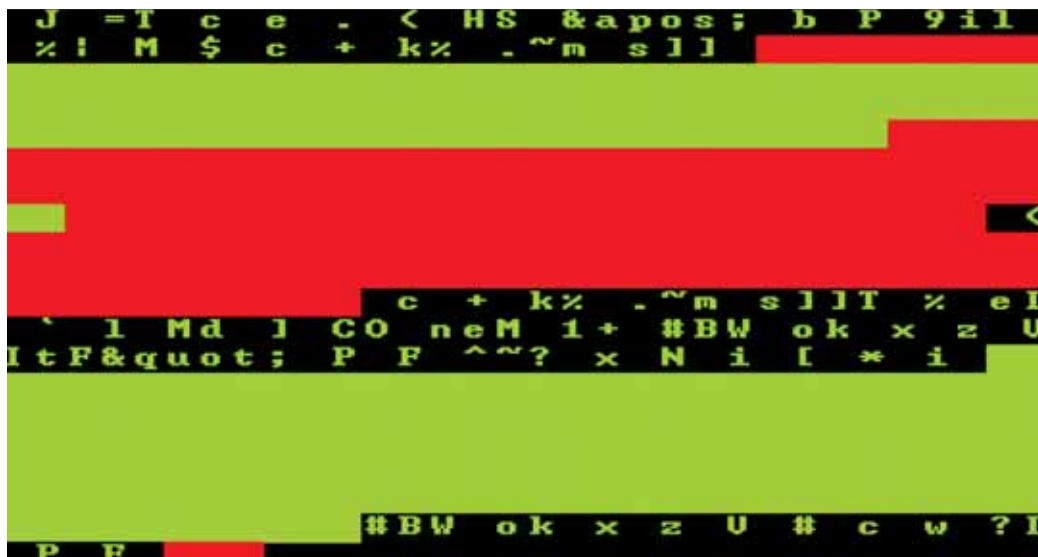
סטנזה, **וריאציות מירלה**, 2000, שפת תניות (HTML), תוכנת מולטימדיה ואנימציה
 Stanza, **The Mirella Variations**, 2000, HTML, Director Shockwave

סטנזה

עבודותיו של האמן הבריטי סטנזה מתבססות על עיקרון של ציורים דיגיטליים מתהווים, המזמינים את הצופה להשתתף באופן פעיל בהזרמת האינפורמציה או להתבונן בקומפוזיציות המתחלפות מעצמן. העבודה, **וריאציות מירלה** (2000) מתפתחת ומשתנה בהתבסס על מערך החוקיות המתמטית של התוכנה באמצעות קוד מתוכנת, במה שמכונה "אמנות גנרטיבית" (generative art). הסאונד והצורות המופשטות בעבודה מייצרים סביבה אינטראקטיבית המזמנת השתקעות במהלכיה ובאפשרויות הניווט הגלומות בה – אחת מתכונות היסוד של הסביבה הטכנולוגית-דיגיטלית. עבודותיו של סטנזה הוצגו במוזיאון הטייט בלונדון ובביאנלה של ונציה (2007).

Stanza

The works created by the British artist Stanza are based on the principle of self-generating digital paintings. The viewer may actively participate in this process by directing the flow of information, or may choose to observe the changing images without intervening in their composition. The sound and abstract shapes that make up **The Mirella Variations** (2000) form an interactive environment; this work thus exemplifies one of the fundamental characteristics of digital environments, which encourage the viewer to immerse himself in them and to experiment with the dynamic possibilities they offer. Stanza's works have been exhibited at the Tate Gallery, London, and at the Venice Biennale (2007).



אלכס גאלווי (RSG), RSG-CPEOC-1, קארניבור - תפוצה אישית לקוח אפס, 2001, תוכנה גרפית מקוונת

Alex Galloway (RSG), RSG-CPEOC-1, Carnivore Personal Edition Zero Client, 2001, Network Visualization Software

אלכס גאלווי (RSG)

קארניבור (2001) הוא כינויה של תוכנת DCS1000 של ה-FBI, המשמשת למעקב אלקטרוני ברשת. בהתייחס לתוכנה זו, אלכס גאלווי יצר עבודת רשת המצוטטת למידע הכולל דוא"ל, טקסטים ודימויים המעובדים לשפה ייחודית של דימויים חזותיים. חומרים אלה הופכים לממשקים אמנותיים, המיוצרים על ידי אמני מדיה שונים. בשונה מתוכנת ה-FBI, זוהי תוכנת קוד פתוח המאפשרת גישה לכל אחד במגמה ליצור עיבוד חזותי של זרם האינפורמציה. בעבודה RSG-CPEOC-1 מבוססת תכונותיהם של פסי הצבע על תחומי תוכנת "חלונות", הצבעוניות מבוססת על שפת הקידוד אסקי, ואילו הסאונד לקוח ממשחק המחשב Half-Life. קבוצת האמנים המשפתת פעולה עם גאלווי, Radical Software, הוקמה בשנת 2000, והיא קרויה על שם מגזין הווידיאו של הקולקטיב "ריינדנס", שהתפרסם בראשית שנות ה-70 – מגזין שחבע הומניזציה של הטכנולוגיה "באמצעות מתן גישה לאנשים לכלי האינפורמציה שהם זקוקים להם על מנת לעצב ולאשר את שליטתם על חייהם".

Alex Galloway (RSG)

Carnivore (2001) is a nickname for the DCS1000 software, employed by the FBI for the purpose of online wiretapping. Using this software as his point of reference, Alex Galloway has created a work that quotes information culled from email messages and from online texts and images – processing it into a unique visual language. These materials are subsequently transformed into art applications by different media artists. In contrast to the FBI software, Galloway has created an open-source software application that may be freely accessed in order to visually process the flow of information. In GSG-CPEOC-1 the width of the color bands is based on Windows application programs; the colors themselves are based on the ASCII encoding language, while the sound is taken from the computer game Half-Life. Galloway founded Radical Software Group in 2000. This group is named after the video magazine first published by the Raindance Collective in the early 1970s. The magazine called for the humanization of technology, so that people could access the information tools they need in order to shape and control their lives.

NØT QUITE, HE
GIVES HER ØNE
SIDELØNG FØUR-
EYED GLANCE

יאנג־הא צ'אנג תעשייה כבדה [יאנג־הא צ'אנג ומרק ווג], הקפיצה של בקט, 2002, פלאש, סאונד

Young-Hae Chang Heavy Industries (Young-Hae Chang and Marc Vogel), **Beckett's Bounce**, 2002, Flash, sound

יאנג־הא צ'אנג תעשייה כבדה

האמנית הדרום קוראנית יאנג־הא צ'אנג ושותפה מרק ווג, משורר אמריקאי המתגורר בסאול, יצרו יחד סדרה של סרטים טקסטואליים קצביים מלווים בסאונד, שבהם מילים מופיעות ברטט פועם ובקצב מהיר וממלאות את המסך; באופן זה, העבודות לוכדות את עינו של הקורא. הסרטים מופיעים בשלוש שפות: אנגלית, קוריאנית וצרפתית והם מתחבים עם אופני מבע אמנותיים שבהם האותיות משמשות לבניית הדימוי, דוגמת השירה הקונקרטי והקולנוע הניסיוני שבו מחליף טקסט את הדימויים. בתחילת הסרט אף מופיעות ספרות בסדר רץ, בדומה לסרטי קולנוע ישנים. הסרט, **הקפיצה של בקט** (2002), עוסק בניכור, באלימות ובמין באמצעות סיפור בדוי שבמרכזו עומדת דמותו של הסופר והמחזאי סמואל בקט. הסופר כביכול משוטט בלילה ברחובותיה של העיר סאול ומנהל דיאלוגים עם נהג מונית וזונה. השניים זכו ב־2005 בפרס Webby לאמנות מדיה מטעם המוזיאון לאמנות מודרנית, סן פרנסיסקו.

Young-Hae Chang Heavy Industries

The South Korean artist Young-Hae Chang and her partner Marc Voge, an American poet living in Seoul, jointly created a series of rhythmic textual films. These films consist of words in three languages – English, Korean and French – which throb and vibrate as they rapidly fill the screen, capturing the viewer's gaze. The films enter into dialogue with other forms of artistic expression where words serve to create a visual image – such as concrete poetry and experimental cinema, in which texts replace visual imagery. The film even opens with a series of consecutive numbers flashing across the screen, as was the practice in early films. The fictional plot of the film **Beckett's Bounce** (2002), which is included in this exhibition, features the writer and playwright Samuel Beckett engaging in dialogues about alienation, violence and sex with a taxi driver and a prostitute on the streets of Seoul. In 2005, Young-Hae Chang and Marc Voge were awarded the San Francisco Museum of Art's Webby Prize for Excellence in Online Art.



מארק נאפיר, לובן שמיים, 2005, ממשק תכנות יישומים ליצירת תוכנות גרפיקה תלת ממדית ממוחשבת, ג'אווה

Mark Napier, **Skywhite**, 2005, OpenGL, Java

מארק נאפיר

האמן האמריקאי מארק נאפיר יוצר החל מ-1995 עבודות החוקרות את האיכויות הטכנולוגיות הבסיסיות של האינטרנט. הממשקים שהוא מייצר מערערים על מרכיבי הסמכות והבעלות הטריטוריאלית בעולם הווירטואלי באמצעות אינטרקציה שיתופית, הכלולה בעבודותיו כמרכיב מרכזי. נאפיר יוצר "ציורים נעים", על פי הגדרתו, המשקפים את הרקע שלו כצייר ואת תפישתו בדבר אי יציבותם של המימדים הפיזיים של החיים העכשוויים. בעבודה **לובן שמיים** (2005) נראה רישום של בניין האמפייר סטייט בניו יורק, שהצופה יכול להטות בו את הדימוי וליצור שכבות ציוריות רבות המתייחסות לנקודות שונות בחלל. באופן זה, האינטראקציה עם הצופים מאפשרת מעורבות בכינונה של העבודה בתוך מאפייניו הפיזיים של המרחב הווירטואלי. נאפיר הציג במוזיאונים רבים דוגמת המוזיאון לאמנות מודרנית, סן פרנסיסקו, מוזיאון הוויטני, ניו יורק, מוזיאון הגוגנהיים, ניו יורק, ומוזיאון המדיה ZKM, קרלסרוהה, גרמניה.

Mark Napier

Since 1995, American artist Mark Napier has been creating works that examine the Internet's basic technological features. The applications he produces undermine virtual authority and territorial ownership by means of inclusive interactions, which are one of the main characteristics of his work. Napier creates what he defines as "moving paintings," which reflect his background as a painter. The work **Skywhite** (2005), which is included in this exhibition, features a drawing of the Empire State Building; this image may be rotated by the viewer to create numerous painterly layers, which relate to different points in space. This interactive format allows viewers to determine the situation of the work in virtual space. Napier's works have been exhibited at numerous museums, including the San Francisco Museum of Modern Art; the Whitney Museum, New York; the Guggenheim Museum, New York; and the ZKM Media Museum, Karlsruhe, Germany.

Sep 11, 2007

MTAA (מייק סארף וטימ ווידן), עדכון און קאוורה, 2007

מסד נתונים, שפת תגיות XHTML, פורמט עיצוב דפי אינטרנט CSS, שפת תסריט מונחית עצמים Javascript, שפת תכנות PHP

MTAA, Michael Sarff and Tim Whidden (M. River & T. Whid Art Associates), onKawaraUpdate (v2), Edition 1 of 3, 2007
Database, XHTML, CSS, Javascript, PHP

MTAA

האמנים מייק סארף וטימ ווידן יצרו את זהותם המשותפת תחת השם MTAA בשנת 1995, ומאז הם מרבים להתייחס לעבודות אמנות מרכזיות שנוצרו בשנות ה-60 וה-70. בפרויקט המכונה "עדכונים" הם משתמשים בטכנולוגיות חדשות כדי לייצר מחדש את הפעולות המאפיינות עבודות מוקדמות אלו. העבודה המוצגת בתערוכה **עדכון און קאוורה מהדורה מס' 2 (2007)**, משחזרת את סדרת עבודותיו של האמן המושגי היפני און קאוורה, שעיקרה ציור של תאריך על גבי קנבס צבוע שחור. השניים, שהחליפו את מלאכת הציור הידני בחוכנת מחשב אוטומטית, יצרו דימוי מינימליסטי בסגנון דומה על דף אינטרנט שמופיע בו התאריך המשתנה מדי יום; לצדו, אף ניתן לצפות דרך קישורים באירועי היום. מהלך זה ממיר את הסובייקט האנושי ואת כוח העבודה האנושי במנגנון ייצור טכנולוגי אוטומטי. השניים הציגו את עבודותיהם בין היתר במוזיאון החדש לאמנות עכשווית, ניו יורק, במכון גטי למחקר, לוס אנג'לס, בפסטיבל וכן בווידיאוזון 2, הביאנלה לווידיאו במרכז לאמנות עכשווית, תל אביב.

MTAA

In 1995, artists Mike Sarf and Tim Whidden began operating as a shared identity which they named MTAA, and their works frequently relate to key artworks created during the 1960s and 1970s. In the project called "Updates," they use new technologies in order to reproduce the actions that shaped these earlier works. The work **onKawaraUpdate (v2)** (2007), which is included in this exhibition, reconstructs a series of paintings by the conceptual Japanese artist On Kawara, which centered upon painting a date onto a black canvas. Sarf and Whidden replaced the process of manual painting with an automated computer program, and created a similarly minimalist image on an Internet page. The date on this page changes on a daily basis, and is accompanied by a series of links to events that took place that day. This strategy replaces the human subject and human work power with an automated mechanism. Sarf and Whidden's works have been exhibited at various venues, including the New Museum of Contemporary Art, New York; the Getty Foundation, Los Angeles; and Videozone 2, the Video Art Biennial at the Center for Contemporary Art, Tel Aviv.



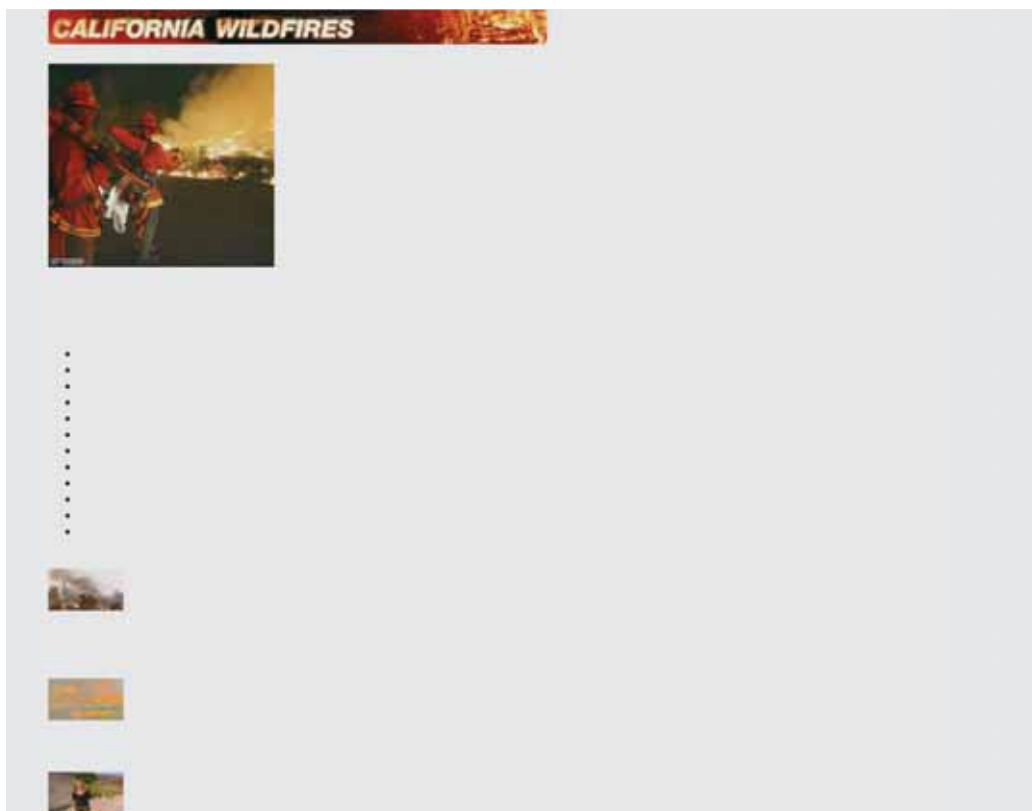
אנדי דק, "חיי הבר מחוץ לרשת", 2007, מסד נתונים, שפת תגיות HTML, שפת תכנות PHP, שפת תסריט מונחית עצמים Javascript, פורמט עיצוב דפי אינטרנט CSS
Andy Deck, **Wildlife Offline**, 2007, Database, HTML, PHP, Javascript, CSS

אנדי דק

אנדי דק החל ליצור ב־1994 "עבודה ציבורית לרשת", כהגדרתו לאחר מספר שנים של יצירה באמצעות חיכנות. הוא פועל באופנים מגוונים הכוללים יצירה של רישומים שיתופיים ומנועי חיפוש דמויי משחקים, שבאמצעותם הוא עוסק בביקורת חברתית דוגמת ביקורתו על תרבות התאגידים, תופעת המיליטריזם ושימור הסביבה. בפיתוח עבודותיו הוא משתמש על פי רוב במערכת ההפעלה לינוקס ומפרסם בחוכנת קוד פתוח, הנגישה לשימוש הצופה. בעבודה המוצגת בתערוכה, **חיי הבר מחוץ לרשת** (2007), דק מזמין את הצופים להוסיף דימויים של חיות המצויות בסכנת הכחדה על מנת לשמרן, וכך משמש אתר האינטרנט כאחד זיכרון וכמכשיר אירוני, מעורר מודעות. מספרם של דימויי החיות ברשת כבר עבר את מספר החיות המצויות בסכנת הכחדה בעולם הממשי. עבודותיו של דק נכללות באתריהם המקוונים של מוזיאון הטייט, לונדון, ומוזיאון וויטני, ניו יורק.

Andy Deck

In 1994, after working as a software artist, Andy Deck began creating what he calls "public work for the Net." His works include collaborative drawings and search engines that resemble games, and which he uses in order to engage in social criticism concerning corporate culture, militarism and environmental issues. He usually develops his works using the Linux Operating System, and publishes them by means of an open-source software application that is accessible to viewers. The work **Wildlife Offline** (2007), which is included in this exhibition, enables viewers to submit images of endangered species in order to encourage their protection; in this manner, the Website serves as both a memorial site and an ironic tool for raising public awareness. The number of animal images on the Web has already surpassed the number of endangered species in the real world. Deck's works are featured on the online sites of the Tate Gallery, London, and the Whitney Museum, New York.



מרק טרייב, התגלות 2.0, 2002, שפת תגיות (HTML), שפת התכנות Perl

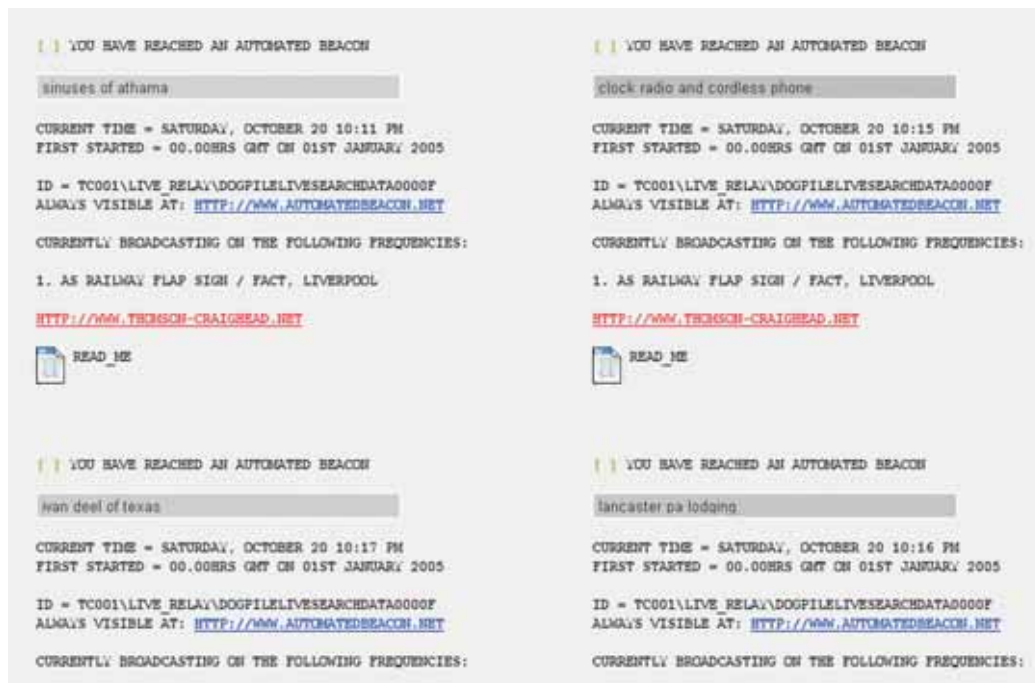
Mark Tribe, **Revelation 2.0**, 2002, HTML, Perl

מרק טרייב

מרק טרייב, אמן אמריקאי אשר ייסד ב־1996 את האתר Rhizome.org – במה מקוונת לקהילת אמני המדיה החדשה. טרייב, הוא יוזמו של פרויקט הרשת **התגלות 2.0** (2002) העושה שימוש בשפת התכנות פרל על מנת "לחשוף" את המבנה של אתר CNN. הפרויקט מייצר מחדש את אתר החדשות ללא הטקסטים המופיעים בו, וכך נראים על המסך פסי צבע ותצלומים הנוחרים אילמים ומאבדים את הקשריהם ואת הדרמה החדשותית הנלווית להם. זוהי העבודה השנייה בסדרה "טפילית" זו, לאחר שהעבודה הראשונה חשפה באופן דומה את האתר של ארגון אמנסטי הבינלאומי, הפועל לקידום זכויות אדם.

Mark Tribe

In 1996, American artist Mark Tribe founded the rhizome.org site – an online platform for the New Media art community. He is the initiator of the Net project **Revelation 2.0** (2002), which makes use of the Perl software language to “expose” the structure of the CNN site. This project reproduces the news site without the texts – featuring nothing but bands of color and mute, decontextualized photographs stripped of their dramatic charge. This is the second work in this “parasitical” series; the first work similarly “exposed” the site of Amnesty International, which campaigns for internationally recognized human rights.



תומסון & קריגהד, 2005, תוכנה גרפית מקוונת, מערכת תקשורת רשתית

Thomson & Craighead, **Beacon**, 2005, Network Visualization Software, Network and Communication System

תומסון & קריגהד

ג'ון תומסון ואליסון קריגהד, העובדים בשיתוף פעולה החל משנות ה-90 המוקדמות, נמנים עם האמנים המובילים בתחום המדיה החדשה בבריטניה. בעבודותיהם המוקדמות השתמשו השניים בווידיאו ובמרכיבים טכנולוגיים בהצבות בחללי גלריות, והחל מ-1995 הם עוסקים בעבודות אשר משלבות את טכנולוגיית האינטרנט בהצבותיהם. הפרויקט **סמן**, הפועל מתחילת ינואר 2005, משדר ללא הרף הבזקים מהנתונים המופיעים ברשת, כגון מילות חיפוש והבזקי סאונד, וכך הוא מתקיים כמעין עדות אילמת לשטף המידע ולתנועתו האינסופית ברשת, בהדגישו את האיכויות הנזילות והטפיליות של היחסים בין המשתמש והקהילה. פעולה זו חודרת באופן מצינני לבקשות במנועי חיפוש ברשת ברחבי העולם ומציגה אותן בזמן אמת במקצב קבוע כשירה קונקרטי אינסופית. הפרויקט הוצג במוזיאונים רבים ברחבי העולם.

Thomson & Craighead

Jon Thomson and Alison Craighead, two artists who have been collaborating since the early 1990s, are among Britain's leading New Media artists. In their early works, the two incorporated videos and technological elements into gallery installations. Since 1995, they have been integrating Internet technologies into their installations. The **Beacon** project, which was activated in January 2005, constantly broadcasts data flowing through the Web – such as search words and sound blasts; it thus exists as a kind of mute testimony to the endless flow of online information, while underscoring the fluid and parasitical qualities of the relations between user and community. This software voyeuristically attaches itself to Web searches around the world; it exhibits them in real time at a pre-established rhythm, as an endless flow of concrete poetry. Thomson & Craighead's project has been exhibited in museums worldwide.