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INTRODUCTION
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< This issue >

Craig Harris

Our feature article this month is an essay by Eduardo Kac, written about a telematic work created with Ikuo Nakamura. Kac's "Essay Concerning Human Understanding" was originally written for publication in the Newsletter of the artists organization Ylem/Artists Using Science and Technology, and appears here by permission of both the author and Ylem. Photographs of the two sites involved in the work will appear on the LEA Gallery WWW site in about a week.

I recently had the pleasant opportunity to be invited to a opening that may start a trend in WWW gallery exhibiting. There is much discussion about how exhibiting on the internet (cyberspace?) differs from exhibiting in the "material" world. The concept of the art opening itself is being reconstructed in the process, as artists and exhibitors try to find effective ways to capture the vibrant experience that often accompanies the opening of the new show. In the gallery world this frequently occurs in the company of friends and colleagues, providing an opportunity to visit, discuss, and experience the work in that setting. The Williams Gallery in Princeton, New Jersey USA has launched a new gallery on the World Wide Web, and will be creating a series of 1-month shows featuring individual artists working in new media art. The first artist to be featured is Roman Verostko, and Roman invited a group of people - friends and colleagues - to his home for a very pleasant visit and viewing of his exhibition on the net. I think that this is a great idea - a terrific way to balance the cyber with the material. Joan Truckenbrod is the next feature artist, and she provides us with an article that accompanies the show, and some insights into the work in the upcoming exhibition. Douglas Bock, the gallery designer takes great care in refining the images for viewing on computer screens, and they apparently have several more artists lined up for the coming months. Information about the gallery appears in the profile below.

Michael Naimark visited Itsuo Sakane's new program in Gifu, Japan, and participated in the launching exhibition. He provides us with a view into the the project and the exhibition in a profile. Leonardo Digital Reviews continues to provide a variety of perspectives on new works in a variety of formats. Rudolf Arnheim's review of "Visual Literacy: Image, Mind and Reality" by Paul Messaris provides a balanced view of the book, pointing out some of the strengths of the work, as well as pointing to some areas that warrant further attention.

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< Essay Concerning Human Understanding >

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The title of this article refers not to Locke's philosophical work, but to the live, bi-directional, interactive, telematic, inter-species sonic installation I created with Ikuo Nakamura between Lexington (KY), and New York. This piece was presented publicly from October 21 to November 11, 1994, simultaneously at the Center for Contemporary Art, University of Kentucky, and the Science Hall, in New York. The installation is scheduled to be presented publicly again at the Susquehanna Art Museum in Harrisburg, Pennsylvania, in September of 1995.

Ikuo, a New York-based Japanese artist and holographer, and I met very briefly in 1990, during the opening of my solo exhibition at the Museum of Holography, in New York. A common friend re-introduced us again online via e-mail in 1993, and since then we started to develop a very stimulating dialogue, primarily over e-mail.

Ikuo and I discovered many interesting points in common. The most striking coincidence was that we were working independently on similar concepts for an interactive installation. He once described a piece in which two cactuses would exchange signals live over a modem connection. I told him about a piece I was working on in which two caged birds would have a live telephonic conversation. After we met again personally in 1994, during the Fifth International Symposium on Display Holography at Lake Forest College, Illinois, we decided to merge the two concepts and create a piece in which my canary dialogues over a regular phone line with his plant 2,000 miles away. Instead of the cactus, the plant of choice was the Philodendron. The piece was exhibited in the context of my show Dialogues, realized partially on the Internet, in connections with other museums and galleries, and in the Center for Contemporary Art at the University of Kentucky.

Placed in the middle of the Center for Contemporary Art, the yellow canary was given a very large and comfortable cylindrical white cage, on top of which circuit-boards, a speaker, and a microphone were located. A clear Plexiglas disc separated the canary from this equipment, which was wired to the phone system. In New York, an electrode was placed on the plant's leaf to sense its response to the singing of the bird. The fluctuation in the electric field of the plant was monitored through a Macintosh running a brain wave analysis program (IBVA). This information was fed into another Macintosh running Max, which controlled a MIDI sequencer. The electronic sounds themselves were pre-recorded, but the order and the duration were determined in real time by the plant's response to the singing of the bird.

When this work was shown publicly, the bird and the plant interacted

for several hours daily. Humans interacted with the bird and the plant as well. Just by standing next to the plant and the bird, humans immediately altered their behavior. When in close proximity, the interaction was further enhanced by the constantly changing behavior of the bird and the plant, which responded by singing more (bird), activating more sounds (plant), or by remaining quiet.

Curiously, both Ikuo and I had similar experiences with some scientists who saw the installation in Lexington and New York. Scientists at both places were quick to ask if and how we were measuring the bird's and the plant's responses and to point out that research in this field has been going on since the '60s. These kinds of questions and observations make us wonder about the possibility of a true dialogue between science and art, since they reveal a basic misunderstanding of our work on their part. Scientists were sighted with a mixture of curiosity and appreciation once we explained that we were not concerned with any kind of measurement, and that the work should in fact be regarded as a human metaphor.

By enabling an isolated and caged animal to have a telematic conversation with a member of another species, this installation dramatized the role of telecommunications in our own lives. The inter-species communicative experience observed in the gallery reflects our own longing for interaction - our desire to reach out and stay in touch. This interactive installation is ultimately about human isolation and loneliness, and about the very possibility of communication.

As this piece projects the complexities of electronically-mediated human communication over nature, it surprisingly reveals aspects of our own communicative experience. This interaction is as dynamic and unpredictable as a human dialogue.

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PROFILES
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< The Williams Gallery >

The Williams Gallery  
8 Chambers St.  
Princeton, NJ 08542  
Tel: 609-921-1142  
URL: <http://www.wmgallery.com>

The Williams Gallery of Princeton, New Jersey is a fine arts gallery founded in 1985 which offers a large selection of 2 and 3 dimensional art to private, museum and corporate collections. Each month the work of one of the foremost artists in the field of digital art will be featured by the Williams Gallery in the Featured Artist Program.

In addition to traditional media including paintings, drawings, original prints, photos and sculpture, the gallery has specialized in fine art created by artists using digital electronic technology. It is now recognized as a pre-eminent source for new art forms in the United States.

The work of many of the most highly regarded artists of today: Cramer, Dickson, Endo, Krause, Leibowitz, Nessim, Schwartz, Snelson, Truckenbrod and Verostko, as well as that of a variety of emerging artists exploring digital media, is presented.

The gallery thereby offers a unique opportunity to select from a wide

range of non-traditional fine art, difficult or impossible to view in one location elsewhere. This concentration of work forms a resource for avant-garde collectors, architects, interior designers and curators who require access to to a broad selection of first-rank work in art's most exciting new medium.

The gallery also organizes off-site exhibitions and is available for consultation on the development of corporate and private collections. For information or appointments please call The Williams Gallery at (609)921-1142; email "wmgallery@aol.com"; or visit us at 8 Chambers Street, Princeton, New Jersey 08542. Gallery hours are Tuesday through Saturday 11 AM to 5 PM and by appointment.

About the Featured Artist Program and Gallery Catalog  
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A brief biography of the artist together with images of one or more of their works will be presented.

These images are representative of the most exciting fine art available today in this medium, and will be of interest to collectors, curators, interior designers and architects.

The work is available for purchase from the Williams Gallery, either unframed or in museum quality framing to your order.

The work of each featured artist will be added to the gallery catalog. The gallery catalog contains all the work and games currently available from the Williams Gallery on-line catalog.

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< Cybergalleries on the Internet:  
    Through the Electronic Looking Glass   >

Joan Truckenbrod  
The School of the Art Institute of Chicago  
37 S. Wabash, Chicago, IL 60603  
Email: truckenbrod@physics.niu.edu  
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Joan Truckenbrod is the Featured Artist at the Williams Gallery WWW Site from September 15 - October 15, 1995. Artwork will continue to be featured in the WWW WMGallery Catalogue following this exhibition. This continues a series of monthly exhibitions at the Williams Gallery WWW Site.

Feature Article  
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Art galleries are one of the apparitions of cyberspace sprouting on the Internet. These sites put "artists in residence" on the World Wide Web. The artifacts of this compu-telecommunications technology are posited on the art-viewing process. In cyberspace art becomes a site - to be excavated. The viewer traverses the terrain of the image. The computer is a lens that the viewer transforms into a microscope, or a telescope to explore the image. The details, the rich textural surface and the delicate visual characteristics are uncovered. The viewer becomes an explorer who moves across the surface of the image. The kinaesthetics of the image are communicated to the viewer through this process. Each image is a cosmos projected by the artist into the mind's eye of the viewer. Unlike being in a gallery surrounded by an artist's work, the viewer establishes a dialogue with one image at a time. The links between the images, the artist's intent, unfolds behind a screen with only one image is visible at a time. The viewer envisions the simultaneity of the body of work.

This electronic looking glass is a radical departure from the gallery scene. The internet constructs of a very broad audience for this artwork. The audience is an international, multicultural audience., reaching beyond the traditional art audience. Some become interested in the artwork because it is woven into the fiber of the Internet. Along with this artwork, we are creating an interactive forum for discussions about the realignment of aesthetics. What are the critical and theoretical issues of creating and exhibiting artwork in a computational and communication matrix?

Another issue in this new form of exhibition involves the effects of viewing artwork on a computer screen. Whether or not artwork is created for the electronic context, it is present and takes a new life in this environment. In fact the appearance of the artwork will be slightly different for different viewers depending upon the computer they are using. A wide range of computer monitors will be used to view the artwork. Image quality, size and color will be effected by different combinations of computers and monitors.

Exhibiting artwork in a cybergalleries involves a dichotomy of place. The viewing space is global, with the artwork accessible to anyone with electricity or batteries, a computer, and a modem or another connection to the Internet. This is a radical departure from the accessibility of galleries and museums. In contrast to the the publicness of galleries and museums, the viewing of artwork via a web site is global. yet private. People sit alone in their homes or offices and have the flexibility to view and interact with art any time. The accessibility via the internet creates a spontaneity in the viewing process.

Radical shifts are occurring in the exhibition of artwork, the positioning of this artwork in relation to museums and galleries, and the life of this work beyond exhibition. The electronic context of creating images, storing images, presenting images and transmitting images catalyzes a new shape for the conceptual framing and viewing of artwork.

#### Statement about Artwork

My artwork has been inspired by various aspects of nature. The indigenous rhythms, and the intrinsic flow of processes in the natural world are the underlying currents in my imagery. In some of the images social landscapes are constructed with natural elements of leaves and flower petals. This is a direct mapping of natural processes onto everyday behaviors, a transfer of the behavior of nature into our everyday lives. The insights of nature are ignored as we work constantly, expecting ourselves to be productive and "right-on" 99 percent of the time. We rarely provide ourselves with "down-time" void of deadlines or demands. Energy is always flowing outward, with little or no accommodation for regeneration. Nature, on the other hand, builds in "down-time". In much of nature we can find periods of hibernation and incubation before periods of flourish or blooming. In nature there are periodic quiet times used for regeneration. This process, inherent in my artwork, is a valuable model for the way in which one lives their life.

My images embody the lyrical tensions of the "everydayfamily". The struggles of forming families, and the challenges of raising children create undulating, uneven and sometimes erratic rhythms. The intent of these images projects volatile family landscapes in which the "everydayfamily" is reforming, and embracing alternative constructs. These images confront societal hindrances of choosing one's own family construct. This issue compounds with the political and economic obstructions to raising children in America.

The current images exhibited at The Williams Gallery web site saddle the power of turbulent water. The traditional patterns of the family socialscape are fractured into multipatterns. Through the turbulence, the symmetry is breaking. The light of the images projected through the computer screen creates a vibration, a dynamism, an aliveness in the images. The electronic image is a cosmos. In the past, the display screen has been an intermediate stage in the development of this artwork. With these images, I have created a universe into which the viewer peers. Each image on the screen is analogous to the keyhole through which Alice gazed in wonder. The universe unfolds as the viewer progresses from one keyhole to the next.

#### Artist's Statement

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The images in this exhibition confront the contemporary ecology of the family. The currency of the everyday family is power. Social and economic dimensions of the family are defined by political powers. Structures, patterns of power, and behaviors subscribe to traditional mythologies of family. Different modes of family-making erupt in response.

#### Soft / Hardware

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In creating these images, I worked with Amazon Paint Software by Interactive Effects, on a Silicon Graphics Indy with a Wacom Graphics Tablet.  
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< International Academy of Media Arts and Sciences  
Opens in Japan, with an Artshow >

Michael Naimark  
Email: naimark@interval.com

Gifu Prefecture, located between Nagoya and Kyoto, is a half-rural half-industrial area known mostly for manufacturing automobile parts and for "cormorant fishing," the ancient Japanese method of catching ayu, a small Japanese trout, using trained cormorant birds fitted with rings around their necks. But right now under construction is a skyscraper in the midst of Gifu's rice fields called "Softopia," and with it, a commitment from the Prefectural government to build a major international presence in the media arts.

The story is not uncommon: an enlightened government leader, a decreasing future in the current industrial base, a desire to be part of the rush in communications and media technologies. The result is "Softopia" (Japanese-English, we can assume, for "software utopia"), a major push by the government to get involved in the multimedia industry.

But in putting the initial plan together, government officials turned to one of the most experienced and respected people in art and technology in Japan, Itsuo Sakane. Sakane has been well-known internationally for over twenty years, writing about art and technology for the Asahi Shimbun. Several years ago he "retired" into creating his own curriculum of "science-art" at Keio University, now one of the largest such departments in the world.

Sakane said yes he would help them, but only if they created an art program to compliment and inspire their Softopia venture.

They agreed. What emerged is the International Academy of Media Arts and Sciences (IAMAS), which Sakane will direct. IAMAS will include both an undergraduate and graduate school curriculum as well as an

international artists-in-residence program.

To inaugurate IAMAS (which opens next spring), an artshow entitled "The Interaction '95" opened there last month, curated by Sakane to introduce the community to interactive art and artists. The show consists of works by Jean-Louis Boissier, Jim Campbell, Luc Courchesne, Paul DeMarinis, Agnes Hegedus, Toshio Iwai, David Rockeby, Jeffrey Shaw, Christa Sommerer and Laurent Mignoneau, Ed Tannenbaum, and me. All the works were interactive installations or performances.

By my count, of the twelve artists, six have had some affiliation with the Zentrum fur Kunst und Medientechnologie (ZKM) in Karlsruhe, four with the Exploratorium artist's program, and three with MIT's ragtag arts scene. This might suggest the direction that IAMAS is heading. It will be well worth watching.

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	LEONARDO DIGITAL REVIEWS	
	AUGUST 1995	

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< Exhibition Catalogue Reviews: SUENOS ROTOS, SILENCIOS ROTOS  
by Marisa Gonzales >

Galeria Vanguardia, Bilbao, Spain  
Febrero 1995

Reviewed by Sonya Rapoport  
Berkeley, California  
Email: rapop@garnet.berkeley.edu

Marisa Gonzales' catalogue of her exhibition BROKEN DREAMS, BROKEN SILENCES at the Galeria Vanguardia in Bilbao, Spain reads visually like an artists' book. Two early (1972) enigmatic photographs of front and back views of a doll introduce the reader to an intriguing sequence of photographs suggesting violation and detachment. Images realized with a 1980's Lumena computer system give evidence of a still potent tool for close-video camera registration. An effective format for presentation of the visuals by lining them vertically in the far left and far right margins of the catalogues' pages simulates the gallery installation on paper. The first illustrations consist of framed groups of 1/2" multiples of the same detached doll head with a gaping orifice from the throat cleavage. On the opposite page the heads are enlarged, capped and have gaping eyeless sockets. The following page contains photographs of small severed doll arms, again with gaping orifices. These holes are from missing underarm joints. Later, the hands are depicted larger and they then are shown reaching toward a single centrally located head.

In the second half of the catalogue Gonzales continues with obvious computer manipulation. The top portion of the doll's face is now masked with a larger sweeping image of forehead and eyeless sockets. Geometric patterns appear. The decorative repetitive sequences diminish at one point and the attempt to reunite the fragmentation by multiplying and serializing has stopped momentarily. I start contemplating the ways the computer has distorted the images and postulate on how Gonzales will resolve them aesthetically and contextually. Closing sequences depict two heads evolving into a mysterious united one. Mene Gras Balaguer and Ana Martinez-Collado have written introductory theorizing texts. However, a poem by Gonzales reveals to us that an expository commitment from her would enhance our understanding of the work. Perhaps she wants it this way.

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< Book Review: Visual Literacy: Image, Mind and Reality  
by Paul Messaris >

Westview Press  
Boulder, CO, USA  
1994. 208 pp.

Reviewed by Rudolf Arnheim,  
1200 Earhart Road #537  
Ann Arbor, MI 48105 USA

Paul Messaris, who teaches at the Annenberg School for Communication at the University of Pennsylvania, has given us the most complete and systematic description of the ways in which the visual media, mostly film, video, and television, convey their information and meaning. The book is well-written and animated on every page by references to examples taken from actual production or from experiments in the scientific literature and Messaris's own observations in his teaching. Nobody looking for a guide to how such images work could ask for a better resource. Messaris states that "the particular aim of this book is not so much to review what others have said or found as it is to develop a theoretical perspective, one that goes against certain widely held views on the nature of visual communication" (p. 39). In this spirit, I shall devote the following review to the clarification of some general psychological issues, where Messaris has been limited by insufficient traditional approaches. The term "Visual Literacy" does not convey the most valuable contribution of this work, because literacy refers to verbal language, that is, to the learning of a set of conventional signs. To apply it to visual media suggests that they also can be understood only as a set of conventional signs. Although Messaris gives in to the present misleading habit to speak of "cues," from which the meaning of images in "inferred," his main thesis is that much of what we comprehend when looking at images is not derived from a specific "language" of the media, but is an application of every-day sensory experience, which he often calls "unmediated" and which he rightly considers universal in human experience.

Messaris faces a problem familiar to anybody who has dealt with early art forms, such as children's art, namely, that the simplest forms of pictorial representation, such as outline drawings, are the earliest to be produced spontaneously and often the easiest to understand. This is true even though the primary sensory data meeting the eyes are the complex optical projections of the physical world. To account for the puzzle, Messaris relies on the theories of the psychologist David Marr, who assumes that perception proceeds by a kind of stepwise filtration, leading from the most detailed image to ever simpler ones. It is by no means clear how, without begging the

question, one could account for such a process. A reference to "a catalogue of structural models in memory" (p. 57) simply postpones the question: memory of what? It is amazing to me that such reasoning is being done without reference to the universal tendency of organic, physical and mental life to create shapes. Is it not the counteraction of this form-building momentum that subjects the optic raw material to the shapes characteristic of perception and then also of representation?

Visual cognition begins not only with the discernment of details but primarily with the grasping of global features. One learns first what "birds" are, before one distinguishes finches from chickadees; and whether one is looking at the real world or at television, the perception of overall features dominates vision. The importance of context, which Messaris rightly considers so essential for the comprehension of what is seen, is not simply an expedient for which the viewer needs to search in order to understand the details of what is seen. It is rather the spontaneous way of approaching the situation.

Messaris teaches courses in communication and concentrates therefore on the critical analysis of the devices by which pictures are made, and how these devices can be used to promote ideological slants, to sell products, or to distort facts. This makes him neglect the "aesthetic," whose principal aspect is the spontaneous experience of the impact of visual expression. Intellectual analysis by conventional "cues" makes him overlook the decisive importance of spontaneity in perceptual processes. A striking example is his dealing with depth perception in pictures. Is it mere inference that makes us conclude that we see spatial depth? An inference is not a visual experience. We see depth rather than just conclude that it is present. And this spontaneous experience of depth, which may be weak or strong, is not produced by the intellect. When the shape presented to us can be seen as a projective distortion of a better structured object in the third spatial dimension, the experience of depth is brought about by the inherent dynamics of perception itself. Since Messaris has much experience in the arts, this correction of his approach should be welcome to him.

Messaris' s book is replete with theoretical and practical issues I cannot discuss here. It is rare to receive a guide to visual thinking and its complement, thoughtful seeing, by an author combining so much knowledge with so much systematic acuity of presentation.

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< Book Review: The Romantic Generation  
by Charles Rosen >

Harvard University Press, 1995  
Cambridge, Mass

Reviewed by Kevin Murray,  
Melbourne, Australia  
E-mail: kmurray@werple.mira.net.au  
WWW Site: "http://werple.mira.net.au/~kmurray/key.html"  
(The key is under the mat.)

This book contains 723 pages, many of them containing scores for piano. If you wanted to find a commentary on one of these scores, you could look up the thirteen page index. If you wanted to actually hear the relevant piece of music, then you could take a razor blade to the back cover, extract a compact disc, and play the appropriate track. There is a curious irony in this publication. The celebrated author, a Professor of Music and Social Thought at the University of Chicago, writes with great sensitivity not only to the arrangement of musical

notes, but also the silences which they suggest. As he comments on a B flat in Beethoven, 'the expressive force of the music causes us to imagine as actually existing what is only implied'. Of course, the irony in this is that the book itself supplies the sound which would otherwise occupy the reader's imagination as she perused the scores. Of course, there's a lot more left to the imagination than in the Microsoft 'listen throughs' of Mozart, Schubert, Strauss, Beethoven and Stravinsky. These CD-ROMs appeal to the implicit democratic narratives in seminal classical works, providing an ideological framework appropriate to the 'Home' series of software. Attention to the 'absent sound' is perhaps impossible in a medium which is so present on the screen. Rosen's epic commentary on Liszt, Chopin and Schumann is a macro-hardcover challenge to the included Microsoft titles.

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< Exhibit Reviews: Art, Biology and Psychology. >

Denis Pariente, "Objectif Vie," Espace Sequier, 12 Rue Sequier, 75006 Paris, France (until end of July 1995).

Louise Bourgeois, "Sculptures, Environments, dessins (1938--1995)", Musee d'Art Moderne de la Ville de Paris, 11 Avenue du President Wilson, 75116 Paris, France (until 8 October 1995).

Reviewed by Roger Malina  
E-mail: mason@mitpress.mit.edu

Two exhibits at opposite ends of a spectrum of artistic expression. The first, by a young artist, Denis Pariente, is a display of sculptures that represent spermatozoa of 50 different species, ranging from mouse sperm to elephant sperm. The totemic sculptures display the bewildering geometric variety of hidden form that make possible the function of fertilization. A hidden fauna that is made visible by the technology of modern microscopy. The display was shown in an intimate setting with the artist present each day, discussing his art and his dreams. His "forest" of sculptures (which the artist hopes to realize on a monumental scale) inevitably triggers thoughts of the loss of tropical forests and the accelerated extinction of species. The work, impersonal but impassioned.

At the other end of the spectrum, the Louise Bourgeois retrospective at the Paris Modern Art Museum. A mature artist at the peak of public recognition. Her strong, personal, large-scale installations and sculptures displayed in the antiseptic, hospital-like architectural space of a modern art museum. The artist was present only through press releases and video clips of interviews. Her work screaming her private demons.

The very nature of being human is being modified by the advances in modern biology, psychology and other sciences that lead to an evolving understanding of ourselves. These sciences also lead to the technologies for intervening on both our own biology and our own psyches. How is the work of truly contemporary artists affected by the scientific and technological discoveries in human biology and psychology? The work of these artists is firmly anchored in a nineteenth century or early twentieth century science. Where is the work of contemporary artists that takes cognizance of the sciences and technologies of biology and neurobiology of the last forty years? Leonardo da Vinci carried out fundamental anatomical research that was the state of the art in the science of that day. Are there artists today engaged in the vital excitement of biological and neuro-psychological research, in genetic engineering in brain research? If indeed the nature of what it means to be human is evolving, artists must be at the forefront of this work.

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< Reviewer's Bio: Stephen Wilson >

American  
E-mail:swilson@sfsu.edu

Stephen Wilson is a San Francisco artist and teacher who explores the cultural implications of new technologies. His interactive installations have been shown internationally in galleries and SIGGRAPH, CHI, NCGA, Ars Electronica, and V2 art shows. His computer mediated art works probe issues such as telecommunications; artificial intelligence and robotics; hypermedia and the structure of information; synthetic voice; and environmental sensing. In 1993 he won the Prize of Distinction in Ars Electronica's international competitions for interactive art. He is an international co-editor of Leonardo, an international journal of Art & Science and is Head of the Conceptual Design and Computer Art program at San Francisco State University.

He has published extensively including articles such as "The Aesthetics and Practice of Designing Interactive Events", "The Relationship of Cultural Theory to Art That Uses Emerging Technologies", "Interactive Art and Cultural Change", "Noise on the Line: Emerging Issues in Telecommunications Art", and "Research and Development as a Source of Ideas and Inspiration for Artists", "The Aesthetics and Practice of Designing Interactive Events" and two books, Using Computers to Create Art (Prentice Hall, 1986) and Multimedia Design with HyperCard (Prentice Hall, 1991). He is currently working on a book called Web Design Guide (Hayden) that will prepare readers to become information providers on the World Wide Web. More details about his papers and art works can be accessed at <http://userwww.sfsu.edu/~swilson>

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< LEONARDO CLASSIFIED ADVERTISEMENTS >

Your announcement could appear here. Contact [rmalina@cea.berkeley.edu](mailto:rmalina@cea.berkeley.edu) for more information.

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< Photo Contest >

Technology Review, a glossy, four-color, national magazine with 100,000 subscribers focused upon the social implications of science and technology, will publish a selection of winning photographs and award prizes of \$500, \$300, and \$200 to the first-, second-, and third-place winners of this year's photo contest, "In Search of Ingenuity ". Contest organizers hope to receive images capturing some of the resourceful techniques people use as well as their emotions as they invent, "Since attempts to devise a clever solution to a problem can yield not only answers but also the distinct pleasures associated with creativity".

To enter, photographers should send no more than six previously unpublished entries--prints or slides in a sleeve--to Photo Essay Contest, Technology Review, MIT, Bldg. W59-203, Cambridge, MA 02139, USA. Entries sent by overnight mail should be addressed to: Technology Review, 201 Vassar St., Cambridge, MA 02139. All entries must be postmarked no later than October 2, 1995. Technology Review acquires the right to publish the award-winning photographs, including honorable mentions, in one issue. Entries without return envelopes and sufficient postage will not be returned, and the magazine cannot take responsibility for loss or damage. Photographers should include cardboard for protection and their names on each slide cover or the back of each photograph, and note the type of film and photographic equipment used.

For more information about Technology Review ( no phone calls about the contest, please), check it out on the World Wide Web, URL:

http://web.mit.edu/techreview/www.

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< Collaboration Sought: FUSION OF ART, SCIENCE AND SPIRITUALITY >

Guy Levrier,

Email : gl11@calvanet.calvacom.fr

Fax : 33 1 34616198

Guy Levrier, an abstract painter, (Member of Artistes Independants, Artistes Francais, Nationale des Beaux-Arts and Institut Academique de Paris), wants to co-operate with scientists and artists in research of new approaches to inspiration and creativity, mutually beneficial to art and science. WANTED : Quantum Physicists, Astronomers, Computer Scientists, Mathematicians, Neurobiologists, Professors of Aesthetics and Philosophy and Artists.

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< END LEONARDO DIGITAL REVIEWS AUGUST 1995 >

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| |  
| ANNOUNCEMENTS |  
| |

< Sapporo International Design Competition '95 >

Kiyoshi Seike, Chairman  
Sapporo International Design Competition  
Tokuunbu (Special Transportation Division)  
Sapporo Tsuun Inc., Soen Shiten  
Nish 16, Kita 11  
Chuo-ku, Sapporo, 060 JAPAN  
Tel: +81-11-611-8777  
Fax: +81-11-611-8784

The city of Sapporo will hold again this year the Sapporo International Competition that has taken place since 1991. Residents of Sapporo live with a great deal of snow for almost half the year. Under the theme "Life and Culture in Snowy Countries: Enjoy Snow - the Light and Colors of Winter," this year's competition will gather designs of any genre whose creativity may provide the winter life and the snow-clad town scape with a touch of "light and colors". The competition will accept designs from throughout the world, as well as from Japan.

The competition is open to anybody, whether an individual or a group. There is no limit to the number of entries and individual or group may submit, except that no entry can have been presented elsewhere.

Entry period: Jan. 10 - Jan. 31, 1996.  
Judging: early Feb. 1996

Send for entry forms and submission details to the address above.  
\*\*\*\*\*

< ICICX To Host - Computer Networking:  
Awareness & Education Conference in Hawaii >

Mr. Robert Mathews.  
Conference Coordinator  
ICICX - HQ  
415 Nahua Street  
Honolulu, Hawaii 96815 - 2949  
United States of America  
Telephone & Telecopier: + 808.921.2097  
Telephone & Telecopier: + 808.533.3969  
Telephone (direct) : + 808.524.2449

E.mail: bm189@po.CWRU.EDU

The International Community Interconnected Computing eXchange (ICICX) announced that it would be hosting an International conference in Honolulu, Hawaii, at the Hilton Hawaiian Village - Mid-Pacific Conference Center, during October 30 - November 3, 1995. It is titled: PNC - People, Networks & Communication '95 (C). The conference will focus on the preparedness of telecommunities and the general populations in meeting the thrills and challenges associated with the seemingly exponential growth of telematic technologies, information societies and the approaching " pacific century."

ICICX has obtained firm commitments from globally notable speakers who range from industry watchers, regulatory analysts, futurists, application specialists working within specialized United States federal laboratories, pioneers in the field, to such speakers as Gail Thackery, Esq., who is featured in Bruce Sterling's book: "The Hacker Crackdown", Bill Cook, Esq., nationally and internationally renowned in the field of intellectual property, unfair competition, patent and trademark issues and Scott Charney, Esq., of the United States Department of Justice -- most often referred to as the "Top Most Law Enforcement Officer On the Internet" to present at PNC '95.

The conference has a timely theme "Turning 21 - A Journey to Maturity in Communications" (C). PNC '95 will provide a stimulating setting for learning, debate and growth for attendants in fields such as: telecomputing, fostering telecommunities and evaluating the implications of emerging technologies (policy, governance, integration of technologies, meaningful use and ethical behavior of On-line populations).

The sponsoring organization; International Community Interconnected Computing eXchange (ICICX), is a non-profit, charitable scientific, research and educational United States corporation, headquartered in Honolulu, Hawaii. It is ICICX's objective to encourage appropriate scales in telematic/informatic awareness within populations; synergy among co-operating and collaborating organizations -- to involve, to facilitate and to enable the existance of necessary instruments and channels of practice concerning activities in the GLOBAL telecommunications and network service areas.

\*\*\*\*\*

< D'ARS: an Exposition of Poetic Artistic Messages -  
Dedicated to Guglielmo Marconi >

Stanley Tomshinsky  
via Fiori Chiari 20  
Milano, Italia  
Email:stom@galactica.it

During the celebrations dedicated to Guglielmo Marconi, we are organizing an exposition of poetic artistic messages, in occasion of this centennial of the invention of the radio.

The title is "S AS GUGLIELMO MARCONI".

You are invited to take part and referring to this theme, to freely ex-press one of your poetic thoughts through a phrase and/or a drawing. All poetic messages and drawings should be sent and arrive not latter than the 25th of September 1995. Attach your personal data and 20 lines telling us about yourself and your activity in the artistic field or about your poetic dreams.

You can send all to Italy by fax to the telephone number:  
(from U.S.A) 011-39-2-865909 - Attenion of Michele Caldarelli

(from Europe) 0039-2-865909

Or by computer (text only) to address:  
stom@galactica.it - attention of Stanley Tomshinsky

\*\*\* NOTE: for images/drawings only use fax.

S AS (...) the three morse code dots transmitted through space across the Atlantic, from Poldhu in Cornwall to St. John in Newfoundland.

S AS GUGLIELMO MARCONI who conceived the idea and received the message that night in 1901 as a confirmation of his first experiment in 1895.

S AS SPIRIT OF INVENTION: the radio was invented one hundred years ago and we would like to take this occasion to celebrate the spirit of Guglielmo Marconi's technological dream, the transcending of space, which opened up the path towards global communication and radically transformed our age.

We have therefore organized an exhibition with: a) the participation of artists & inventors with some of their works; b) the collecting of messages relating to the spirit of invention, to global communication by fax, tele- phone, computer... to the technological transmission of thought and feel- ings, to the reformulation of space-temporal parameters, to the accelerat- ion of vital energy, to the potentiality of art as a privileged vehicle of this and of all possible dreams.

This exhibition will be held at the "Guglielmo Marconi" School in N.Y.C., >from 2 October until 30 November 1995. The United States Post Office is issuing stamps for these Marconi celebrations and the show opening will coincide with the installation of a philatelic cash desk (to postmark the stamps on the first day of issue) in the school itself.

During the show the annual School Gala will be held. There will also be other events, such as the projection of a film on Guglielmo Marconi. We are gathering these testimonials and have the intention of publishing them in our magazine "D' ARS" at the end of these Marconi celebrations.

WHO WE ARE?

D' ARS AGENCY founded in 1959 by Oscar Signorini  
Giardino Aristide Calderini 3 (gi` via Sant' Agnese)  
20123 Milano Italy  
Tel. 0039-2- 860290

Projects & cultural services for contemporary art. Director Grazia Chiesa The agency organizes meetings, conventions and art expositions in Italy and abroad, attends to all contacts with artists, critics, galleries, mus- eums, public organizations, collectors and media. Takes care of scheduling expositions in qualified spaces in Italy: Milan, Rome, Naples, Florence, Bologna, Turin, Bergamo, Padova, Ferrara, Treviso, Venice, and Como; in Europe: Paris, London, Helsinki, Bruxelles; in Asia: Tokio, Fukuoka; in the U.S.A.: NewYork, Ithaca, Richmond, Los Angeles; in Brasil: Recife, San Paolo; in Argentina: Buenos Aires, Tucuman

LA SCUOLA NEW YORK "GUGLIELMO MARCONI", 12 East 96th Street, New York , was founded in 1977. Actual Executive Director: Gabriele Del Re. An unique in- dependent school for children from pre-school through high school. It is the only school in New York City that integrates the best educational fea- tures of Italian and American schools. Students

become thoroughly bilingual and bicultural through the use of English and Italian as languages of instruction from the nursery to the 12th grade. The curriculum spans a wide range of studies in Mathematics and Computer Sciences and Arts. The teaching of the Humanities - English and Italian, Latin, Greek, Art, Art History, Archeology and Music - reflects the philosophy of the school and provides the humanistic perspective of liberal education. The literary and artistic works of Italy, America and Great Britain are taught comparatively so as to emphasize the dialogue that exists between authors, thinkers and artists of all countries and all times.

\*\*\*\*\*

< FESTIVAL DI 'MUSICA VERTICALE' - ROME - Call for Music >

Luigi Ceccarelli, President  
Alessandro Cipriani, Agostino Di Scipio, Committee members  
Festival di 'Musica Verticale  
c/o Associazione Musica Verticale  
Via Gentile da Mogliano, 158  
00176 Roma ITALY  
Tel/Fax: +39 6 8411034  
Answering machine: +39 6 21704491  
Email(s) a.cipriani@agora.stm.it, lms@vxscqa.aquila.infn.it

Founded in 1977, Musica Verticale was the first musical institution entirely devoted to the diffusion of electroacoustic music in Italy. Since then Musica Verticale's annual Concert Series has established as a well renowned electroacoustic music event in Europe. In the Concert Series held so far, over 500 works by composers from all over the world have been presented, tracking the development of the ever challenging relationship between music and technology.

Musica Verticale is now organizing the 18th Concert Series, to take place in Rome, in Autumn and Winter 1995, and is collecting proposals for later events.

The Organizing Committee welcomes submissions of electroacoustic works in the following media: tape music, instrument(s) and tape, instrument(s) and live electronics. Also performances featuring electronics (small productions) will be considered, as well as proposals, in the same media, from small ensembles and/or soloists. Works and/or concert proposals considered for performance could be programmed in the next Series.

Each entry should include tape(s), scores if any, and information about the submitted work(s), composer(s) and/or performer(s). The material sent won't be returned. DAT tapes and scores will be added to the Electroacoustic Music Archive of Musica Verticale.

\*\*\*\*\*

< 4th International Conference on Music Perception and Cognition >

Bruce Pennycook, Eugenia Costa-Giomi  
4th ICMPC  
555 Sherbrooke St. West  
Montreal, Quebec, Canada H3A 1E3  
Tel. (514) 4548 x 0504 Fax. (514) 398-8061  
email: icmpc@music.mcgill.ca  
<http://www.music.mcgill.ca/~icmpc/icmpc.html>  
August 11 - 15, 1996

McGill University is sponsoring the 4th ICMPC. This interdisciplinary conference will focus on a variety of aspects of music perception and cognition: psychoacoustics, music performance, musical development, music modeling, music analysis, neuro-psychology, psychophysiology, and sociology.

Call for Papers and Demonstrations

Deadline: January 31, 1996

Unpublished papers on research in music perception and cognition are invited for presentation at three types of sessions: reading sessions, poster sessions, and demonstrations.

Submit:

- \* a summary of the research (maximum 500 words)
- \* five single or compound keywords describing the field and topic of the paper
- \* each author's name, title, institutional affiliation, mailing address, telephone number, and email address
- \* equipment requirements
- \* statement indicating your preference for reading and/or poster, and/or demonstration session

Formats : email (preferred), diskette (Word, WordPerfect, ascii), hardcopy

\*\*\*\*\*

< Sound Anthology--"Computer Music Journal" Volume 19 Compact Disc >

Stephen Pope, Ed.  
 Computer Music Journal CD  
 MIT Press Journals  
 55 Hayward St.  
 Cambridge, Massachusetts, 02142 USA  
 Tel: (+1-617) 253-2889  
 Fax: (+1-627) 258-6779

Electronic mail: journals-orders@mit.edu (include credit card information)  
 (WWW <A HREF = "mailto:journals-orders@mit.edu">journals-orders@mit.edu</A>)

The first-ever Computer Music Journal CD--Sound Anthology--has appeared! It includes in its 20 selections over 60 minutes of compositions and sound examples from composers such as Clarence Barlow, Ludger Bruemmer, Paul Lansky, D. Gareth Loy, Mari Kimura, Jean-Claude Risset, Neil B. Rolnick, Denis Smalley, Rick Taube, James Tenney, Barry Truax, Tamas Ungvary, and Amnon Wolman, and researchers of the likes of James Beauchamp, Perry Cook, Lippold Haken, Andrew Horner, Peter Langston, Xavier Serra, and Julius Smith.

The complete contents are are stored on the Computer Music Journal WWW site and ftp archive under the URL  
<http://www-mitpress.mit.edu/Computer-Music-Journal/Contents/19.CD.toc>.

\*\*\*\*\*

< Leonardo Music Journal 5 Contents >

Grace Sullivan  
 Leonardo/ISAST  
 236 West Portal Ave, #781  
 San Francisco, CA 94127  
 Tel: (415) 338-1444  
 Leonardo Fax: (415) 338-0915

The following are the contents and contributors to Leonardo Music Journal 5, due to be published in December of 1995.

Editorial

DOUGLAS KAHN: An Unheard-of Organology

Artists' Articles

BRIGITTE BURGMER: Chromatic Notation of Music: Transforming Bach and Webern into Color and Light

DAVID A. JAFFE: Orchestrating the Chimera: Musical Hybrids, Technology and the Development of a "Maximalist" Musical Style

Artists' Notes

PAULINE OLIVEROS: Acoustic and Virtual Space as a Dynamic Element of Music

ROBERT HP PLATZ: More than just Notes: Psychoacoustics and Composition

DIANE THOME: Reflections on Collaborative Process and Compositional Revolution

Technical Article

CHARLES AMES: Thresholds of Confidence: An Analysis of Statistical Methods for Composition, Part 1: Theory

Historical Perspective

LIBOR ZAJICEK: The History of Electroacoustic Music in the Czech and Slovak Republics

Theoretical Perspectives

PAVEL B. IVANOV: A Hierarchical Theory of Aesthetic Perception: Scales in the Visual Arts

ANDRA MCCARTNEY:

Inventing Images: Constructing and Contesting Gender in Thinking about Electroacoustic Music

CD Companion

MARC BATTIER: Introduction

Contributors' Notes: ICHIRO NODA=FERA, MASAHIRO MIWA, MAMORU FUJIEDA, YUJI TAKAHASHI, HINO HARU MATSUMOTO, SHIGENOBU NAKAMURA, KAZUO UEHARA

Reviews

GERALD HARTNETT, CURTIS KARNOW

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JOBS/OPPORTUNITIES

< Positions in Computer Music at Kurzweil Music Systems >

Young Chang-MM
1432 Main St.
Waltham, MA 02154
Tel: (617) 890-2929
Fax: (617) 890-2014
Email: jobs@ycrdi.com

At Kurzweil Music Systems we are continually inventing and improving upon the most sophisticated music technology. Come join us as we develop the next generation of state-of-the-art professional synthesizers, digital audio, home digital pianos, and multimedia products. With \$50M in world-wide sales and expanding, we have opened the following new DSP, Hardware, and ASIC positions:

Audio DSP Engineers. Entry & Senior Level: Wanted: Electronic music enthusiasts with BSEE or BSCS degree. Master's degree preferred for Entry Level position; Ph.D or extensive relevant work experience for Senior position. Both positions require a strong background in DSP as

applied to digital audio, (fourier transforms, Z-transforms, filter design, etc.), software development experience, as well as experience using synthesizers and effects processors, a good ear, and a lot of imagination. Familiarity with synthesis algorithms, microcoding DSP chips, music production and recording practices, SGI-based applications development, and/or music-related skills a plus.

Hardware Research Engineer: Engineer needed for research in music synthesis, digital and analog audio design, etc. This new position requires a BSEE (or equivalent) and at least 6 years experience in analog and digital hardware design, including audio. Experience in conducting and documenting research, helping others to apply it, designing with embedded micros, RISC, DSP, PLL's, signal integrity, Delta-Sigma ADC's & DAC's, filter design, microphone preamps, grounding & shielding, MIDI, and music are all desirable.

ASIC Design Engineer: This new position requires a BSEE (MS preferred) and 5+ years of successful development of large (>25K gates) cell-based, semi-custom ASICs, including strong experience and skills in register-transfer-level (RTL) behavioral modeling, C programming, high-level design languages (HDLs), logic-level verification, test vector development, chip debug, and MOS logic design. Experience with digital signal processing, or with COMPASS tools a plus.

Kurzweil Music Systems products are developed, manufactured, and distributed by Young Chang Akki Co., Ltd., a large Korean manufacturer of acoustic pianos, guitars, and other musical instruments. All openings are for our Waltham, MA research and development facility (moving next spring to larger quarters in Bedford, MA). Qualified candidates should write (with salary history) to the address above.

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ACKNOWLEDGMENTS
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LEA FORMAT CONVENTIONS
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The following describes the format or markup conventions used in creating Leonardo Electronic Almanac. The function of these conventions is to facilitate perusal through the text, and to make it easier to create conversion programs to various text readers.

- =====: Section Heading Delineation - 62-character sequence
  - \*\*\*\*\*: Item Delineation within Section - 62-character sequence
  - : Separator for subsections within items.
  - < : Begin Item Title - search for the character "<" followed by two spaces
  - >: End Item Title - search for two spaces followed by ">"
  - |\_ or \_|: This sequence takes you to the next SECTION TITLE.
- Item titles and author/contributor names appear exactly the same in the Table of Contents and at the location of the actual item. Section names appear in all capital letters, and appear with all letters in sequence with no spaces (PROFILES, REVIEWS, etc.).

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| AND |
| FTP |
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The LEA Word Wide Web site contains the LEA archives, including all back issues, and the Leonardo Electronic Gallery. The Profiles and Feature Articles have been extracted from the back issues, and reside in their own sections of the site. It is accessible using the following URL:

<http://www-mitpress.mit.edu/LEA/home.html>

Back issues, submission guidelines and LEA Gallery files are available via ftp anonymous, using the following method:

```
ftp mitpress.mit.edu
login: anonymous
password: your_email_address
cd pub/Leonardo/Leonardo-Elec-Almanac
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| PUBLISHING & |
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===== < End of Leonardo Electronic Almanac 3(8) >  
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