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INTRODUCTION
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- < This Issue >

With this issue of Leonardo Electronic Almanac I am pleased to announce a new section Leonardo Digital Reviews (LDR). Leonardo Digital Reviews is an electronic review journal which will be published regularly as a section of the LEA. LDR is provided by LEA Editor Roger Malina, in conjunction with Gene Cooper, Mason Wong, Geoff Gaines and Susanna Camp. The Review Panel includes Rudolf Arnheim, Simon Penny, Mason Wong Stephen Wilson, Robert Coburn, Marc Battier, Thom Gillespie, Jason Vantomme, Geoff Gaines, and Clifford Pickover.

Also in this issue is a collection of abstracts of articles to be published in the journal Leonardo. I would like to thank Roger Malina and his team for providing these advance perspectives on a variety of work. Additional abstracts are being posted on the MIT Press ftp site. Check the README file on the file server for details.

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- < Letters to the editor >

Comments on Henry See's

B\*rbie'sVirtualPlayhouse@CityOfTheFuture.ent

Sonya Rapoport

Dear Henry:

I enjoyed tremendously your article on "B\*rbie's Virtual Playhouse" in LEA's January Issue. It is a classic and should be widely distributed. Many points got to me. I'll try to briefly confine my comments to your questions at the end as I have asked myself the same things. Firstly, for most people the costuming is as important as the activity: jogging outfits, motorcycle leather, bathing suits, etc. Being forced to act within the "corset" is a choice the user can make. I personally get a little scared; some are challenged; but I don't know how big an item this is. The substitutes you used for the VR implements are part of the creative dynamics of your piece and contribute to it. The big issue is: how is interactive art, art? The artist who has controlled the extent and structure of

the "choices" etc. can be creating a work of art. However, many curators of traditional art forms have the pat response that the interactive limitations of a computer program are artificial and weaken the work. (Maybe they just don't like the computer). With a very broad latitude for interactivity such as comments on a wall, or throwing a ball, the common denominator of the passing public "artist" is not making art. However, this activity or making choices on the computer could contribute to the total configuration and support the original artist's concept. If the artist relies too much on a response that doesn't do much for the content-structure of the piece, it is neither good (nor) art. I have always felt that interactivity is a tool to enrich the artist's concept and that it goes beyond the physical and makes the viewer open up and "see". In my artwork, "ShoeField", the participants' input changed the data in the computer program and as a consequence, the look of a seven foot field plot. The result was beautiful but I think any such input would have created a beautiful plot because of the nature of the program.

Regards, Sonya Rapoport

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FEATURE ARTICLES
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The abstracts which appear here are selected from papers which will appear in upcoming issues of the journal Leonardo.

< Sidelights on Visual Texture >

Luis Caivano  
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Received 3 May 1993. Accepted for publication by Roger F. Malina.

This article reports on a work that deepens the study of texture, a factor of visual perception whose development has generally received little attention from the analytical point of view [1]. Textures are considered here as visual signs, rather than as sensations of touch. The system I present includes methods for texture ordering, classification, description, notation and production. Its basic tools are a set of variables for analysis that can be quantitatively expressed or registered to provide specific notations.

This set of variables allows the user to analyze simple textures, as well as to control their combination to obtain any degree of complexity. The variables aim at describing textures, and the numerical notation is a useful tool for easily transmitting information about textures without drawing them (for instance, in interaction with computer graphics).

My previous work [2] led to the completion of a relatively simple system that allows for the organization, analysis and production of certain textures. Its main weakness is that it only produces absolutely regular textures and therefore does not account for the many irregular textures habitually encountered. The work I report on here overcomes this limitation and progresses into new fields.

I classify textures primarily as simple or complex. In plain terms, simple textures are generated by the repetition and juxtaposition of an elementary pattern (called a texture unit), which is composed of two identical texturing elements separated by a certain interval. Complex textures are generated by the superposition of two or more simple textures.

In order to analyze or define a simple texture, it is necessary first to describe the texturing element by means of a set of variables that account for its shape, and, secondly, to describe it by means of variables of proportionality, organization and density, which reflect the way texturing elements appear in the texture unit.

Even though the shape of the texturing element does not alter the basic structure of the texture, undoubtedly it does modify its visual aspect. To analyze this variable, we may use the theory of spatial delimitation to describe simple or complex shapes [ 3] .

Proportionality is the variable that defines the proportion (height/width) of the texture unit.

Organization is the variable that defines the relative position of the texturing elements within the texture unit. It relates the slope of the texturing elements' alignment to the proportionality of the texture unit.

Density is the variable that relates the surface of both texturing elements to the surface on which they appear. If, thinking in terms of the figure-ground phenomenon, we consider the texturing elements as figure, then density is the surface of figure divided by the surface of ground.

Complex textures are those made up by the combination of simple textures. First, the combination of two simple textures needs to be considered. This involves the description of the simple textures plus the description of the combinatorial variables: separation on the x axis, separation on the y axis and rotation existing between both simple textures. Each variable can be expressed numerically.

The juxtaposition of two simple textures produces a complex texture of the first grade. The procedure can be recursively applied in order to describe or generate complex textures of second, third or higher grades. For example, a second-grade complex texture is the combination of a first-grade complex texture with a simple texture (involving a total of three simple textures), a third-grade complex texture is the combination of two first-grade complex textures or the combination of a second-grade complex texture with a simple texture (involving a total of four simple textures involved in total), and so on.

Some immediate consequences of this system are that textures can be thoroughly classified with sound criteria, and that it is conceivable to think in terms of the development of a system for ordering textures, just as color systems have been proposed for the organization of colors. This systematization would provide artists and designers with a basis for managing principles of harmony in the use of textures.

References and Notes

1. L. Caivano, "Towards an Order System for Visual Texture," forthcoming in Languages of Design.
2. L. Caivano, "Visual Texture as a Semiotic System," *Semiotica* 80 Nos. 3/4, pp. 239-252 (1990).
3. This theory has been proposed by C. Jannello. An English account of it may be found in F. Cuerri, "Architectural Design and Space Semiotics in Argentina," *The Semiotic Web 1987*, T. A. Sebeok and J. Uniker-Sebeok, eds. (Berlin: Mouton de Gruyter, 1988), pp. 383-419.

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< Binarisation Performances: Direct Intervention on the Digital Networks >

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Received 10 September 1993. Accepted for publication by Roger F. Malina.

Theory

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Experiments in digital transmission generally use the entire range of information-transfer techniques available in our era-involving both alternating and interactive exchange-without, however, revealing the specifics of the process. In comparison, information-transfer (IT) artistic action involves networks as channels of digital information, maintaining existing procedures of communication while applying a strategy of digital amplification using two variables: time and memory.

-The time variable defines the frequencies of sending images according to time periods of 2, 4, 8 and 16 units; it defines methods of display according to line-by-line increments. The passage of time is heightened during the period of transmission.

-The memory variable sends the digital content (0/1) of the transmitted fragments: the 0/1 elements that represent the structure of the fragment are sent as such through the lines of the network, and the message is then presented in binary form. The memory of the message is thus heightened during this time.

The type of network chosen may be local or long-distance; the layer of reception of the binary fragments functions in the background in the communication software.

Practice

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Following are analyses of two typical binarisation performances: "Cultural Signs", created for the XLV Venice Biennale [ 1 ], and "Memory of the Twentieth Century", which was part of Documenta IX [ 2 ] .

"Cultural Signs"

The objective of this performance was to broadcast through the Integrated Services Digital Network (ISDN) a multimedia IT journal on the theme of cultural signs. The following question was posed to correspondents connected to the network:

"Define the meal, the cloth, the feast and the means of communication which, in your opinion, best express your culture."

The network correspondents sent their messages by fax, mail or ISDN to the Binarisation Center in Paris. I converted the messages into binary code and then transmitted them by ISDN line to Venice. The data were expressed in real time and integrated into the multimedia journal as they were binarised.

"Memory of the Twentieth Century"

The following question was posed to correspondents connected to the network:

"Define the Man, the Woman, the Object and the Event which you feel best express the twentieth century in the human memory."

The journal was relayed by radio waves throughout the zone of Kassel and the state of Hessen (Frankfurt). Hookups were assured by satellite transmission on the cable networks of Germany, Switzerland, Austria, Italy, France, the Commonwealth of Independent States (CIS), Japan, Canada and the United States.

Binary messages were transmitted over a field of interactive communication called the "Piazza Virtuale." The interactive-television experiment produced at Kassel by Van Gogh TV allowed the correspondents who were connected to the network at a given time to enter directly into the broadcast via simodes: ISDN, vocal, modem, touchtone, videophone and fax.

The television screen was virtually divided into three zones: the upper part included the zones for videophone, fax and modem; the lower zone showed the image of text messages.

#### Conclusion

In these performances, voices, music and sounds were mixed together simultaneously with the images in what were essentially playful communication spaces. The challenge was to construct a language of interactive communication and to define a specific syntax at the edge of intelligibility and cacophony. The transmission of binary messages on the virtual "piazzettas" (little places) has permitted us to unite different modes of communication through different means of access, such as modem, ISDN, videophone and voice. The voice is used to define the rules of the game, the binarisations to calculate the results of the performance and to stimulate the association of ideas.

The interventions of 12, 15, and 18 September 1992 at Documenta IX have allowed us to set up several criteria for interactive multimedia communication: (1) the preeminence of the voice and of speech as a unifying principle in multiple communications, (2) the necessity of broadcasting a single message at a given moment, (3) allowance for the association and rebounding of ideas as forms of communication, (4) the priority of light and rapid digital activities.

#### Notes

1. "Cultural Signs" took place at the Venice Biennale from 21 - 27 June 1993, in collaboration with ECI and Casino Container.

2. "Memory of the Twentieth Century" took place at Documenta IX in Kassel, Germany from 10 - 20 September 1992, in collaboration with ECI and Van Gogh TV.

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< Les Miradors De La Paix (The Watchtowers of Peace) >  
Fred Forest  
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Received 26 July 1993. Accepted for publication by Annick Bureaud.

"The Watchtowers of Peace" - an event I organized at the former Yugoslavian border of Austria - allowed for world-wide participation in a telecommunications demonstration [ 1] . The "watchtowers" were three 8-meter-high metallic structures installed at the top of a pass in the mountains above Slovenia. Powerful loudspeakers were mounted on each of these three sound sculptures. The natural landscape gave a poetic dimension to the project although it was not landscape art. Rather, this work came out of the Aesthetic of Communication movement [ 2] , and its primary purpose was to underline the concept of relation.

Connected to the international telephone network, "The Watchtowers of Peace" could be called from all over the world. An invitation was extended to anyone wishing to participate through a live and real-time telephone call to cover the territories facing war with messages of peace, positive waves and energies. Simultaneously, the calls were processed by a computer as they came in and were converted into electronic signals (a metaphor for the collective energies) to be sent on the network whenever a 30-second period passed without an incoming call.

The physical range of the loudspeakers was limited to approximately 30 km. The shape of the mountains in the area acted as an echo chamber in which the amplified sounds of the calls reverberated. Beyond this local situation, the calls were transmitted to Yugoslavia and to European countries by microwave relay. The event reached various radio stations (among them Radio France International [ RFI ]), which, through FM and short waves, cover the whole planet. It was also transmitted to "Right to Speak" radio, which is installed on a boat off the Yugoslavian coast, and from there it reached listeners in Sarajevo, Zagreb and Belgrade. Listeners were invited to telephone "Le Monde de l'Art," an international gallery in Paris, where their calls were amplified for the audience. The calls were stored in a sound database used by other radio stations like Radio Nova and RFM.

Thus, an interactive communication system integrating various layers and networks was built. Printed media played a role up- and downstream of the process, introducing the symbolic inside the information space. In this kind of work it is important to recall that the independent activities of artists do not, unfortunately, have the power to modify real crisis situations whose outcomes depend primarily upon political, military, economic or even social decisions.

Nevertheless, symbolic actions remain a fundamental necessity. While maintaining a modest and lucid awareness of the real

impact of their actions, artists can still knowingly play a part in the processes of fostering awareness, consciousness and ethical responsibility. The mass communication systems spreading throughout our societies can become decisive means of diffusing the symbolism that artists create, providing the possibility of acting directly in this new space of modernity that is the space of information. The metacommunicative contents of messages, when registered in this space, bring to it their aesthetic, artistic, critical, ethical or even spiritual and playful signs. The trail that was once traced on the walls of caves by hand is now drawn out on the tissue of information!

If the madness of human beings can lead us to electronic war, why not suppose that human wisdom will also lead us to take the modern paths of communication to spread electronic particles of love and peace. More important than providing decoration or expressing oneself freely or within a restrictive formalism, the function of the artist in the future must be on the level of ethical responsibility.

Notes

1. "The Watchtowers of Peace" took place from 28 May through 5 June 1993, during European Culture Month in Graz, Austria.
2. The Aesthetic of Communication movement was launched by Mario Costa and Fred Forrest in 1983.

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< Paradise Tossed >

Jill Scott

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"Paradise Tossed" is a dreamy computer-animated survey of technological terrain, idealism and design shown from four young women's points of view. It uses MacroMind Director to access sections of a 12-minute, three-dimensional (3D) animated sequence on a Sony laserdisc player. The menus are laid out like pages of a photo album, and, by touching the screen, the participant can not only choose segments to be played on another screen but can also construct timeless associations.

Margaret Mead once said, "Utopia is built on the great diversity of human propensity and gift and it must be in terms of modern information theory, redundant enough to catch the developed imagination of each different member of society." Mead's insight into the redundancy of the human condition was the inspiration for research that led me to a series of archetypical assumptions. Working from "Machinedreams," my last interactive work, I continued to research and compare the eras of the 1900s, 1930s, 1960s and 1990s, conscious that although they exist a generation apart, together they encapsulate the tremendous extent of environmental and domestic change we have witnessed since the beginning of this century. It occurred to me that interactivity could provide people with archetypical scenarios that they would be curious to visit and that in doing so they might question the reasons for their own choices and think about why so many people's ideals were similar. In Paradise Tossed participants can enter dream homes from the history of design, which are marked with the caption "Step into the home of your dreams?" The four animated homes are designed in Art Nouveau, Art Deco, Op art and Space Age architectural styles. The choices are redundant enough to reaffirm utopian



cliches, but I thought that by putting them in the mosaic framework of an interactive design they could transpose time and stand together to represent valid, desirable options even today.

It is this "timelessness of desire," as emphasized by the title "Paradise Tossed", that I was aiming to present as an interactive playground. The heraldic pun of the title indicates "the tossing of desire": which part of the proverbial "salad" of idealism will the participant choose to "eat" next? One section provides a set of choices within the technological terrain. Here, domestic technology is used as a metaphor for the history of the machine-human interface, and the change and manipulation within the woman's workplace becomes apparent as domestic appliances seductively present themselves over a landscape flowing with the curves of the female body. A typical advertisement slogan is used to reaffirm this: the viewer is asked to "Just step into the technology of Tomorrow."

At another point the viewer can also "Flip through these Eyecatching Headlines," as the screen displays authentic pages of magazine headlines from each era. Another menu displays the caption "Travel with us into Another World" and allows the participant to witness transport on a boat, a train, a car and a plane, respective of the shifts in mobility development that took place over this century. The heraldic statements are intentionally seductive and reminiscent of the selling methods used to convince the average buyer. I made "Paradise Tossed" in the hope that the participant would see through the seduction. A key to this critical viewpoint is seen in an interactive loop: a woman's hands hold a revolving globe of our blue world; a caption says, "Where do we go from here?"

"Paradise Tossed" is a section of a larger interactive work that will encompass questing stories from eight women's lives - two from each era - and four sets of archival photographs that the participant can browse through.

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PROFILE
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< Computer Animation Courses at Bournemouth University, UK >

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The National Centre for Computer Animation at Bournemouth University in the UK offers courses in Computer Visualisation & Animation.

The Postgraduate Diploma/Master of Arts in Computer Visualisation and Animation is a full-time program lasting 3-4 terms (1 Year). The Bachelor of Arts in Computer Visualisation & Animation Full-Time is a 3-year program.

The PgD/MA is now in its fifth year. The BA is in its second year. We are currently accepting applications for the PgD/MA for the year 1994/95. The PgD/MA is addressed to Artists and Designers who wish to learn about 3D computer animation. Two inter-related themes run through the course:

- Computer Graphics techniques, including an introduction to programming and computer graphics programming techniques.
- Applications, including practical and creative use of computer visualisation and animation tools.

Each component of the course is related to these two main themes. In the practical software-related components students gain an understanding of software and some ability to modify existing software. The applications-related components are project based, providing an opportunity to gain expertise in using the computer as a powerful tool for visualisation and animation.

It is a fundamental understanding of the course that to fully exploit the potential of computer animation systems Artists and Designers need to learn how to program and how to animate. The staff therefore includes animators with backgrounds as computer scientists, fine artists, designers, and traditional animators. There is now an established research and consultancy practice within the NCCA.

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LEONARDO DIGITAL REVIEWS
MARCH 1994

Editor: Roger Malina  
Editorial Assistant: Gene Cooper  
Coordinating Editors: Mason Wong and Geoff Gaines  
Editorial Intern: Susanna Camp  
Review Panel (includes): Rudolf Arnheim, Simon Penny, Mason Wong  
Stephen Wilson, Robert Coburn, Marc Battier, Thom Gillespie,  
Jason Vantomme, Geoff Gaines, Clifford Pickover

.....  
Leonardo Digital Reviews (LDR) is an electronic review journal published regularly as a section of the Leonardo Electronic Almanac. Leonardo Digital Reviews covers publications, conferences, events and publicly presented performances and exhibits. The focus is the work of artists, scientists, technologists and scholars dealing with the interaction of the arts, sciences and technology. Topics covered include the work of visual artists, composers and multimedia artists using new media and technologies in their work, artists dealing with issues and concepts from contemporary science, the cultural dimensions of science and technology and the work of scholars and historians in related fields.

- Specifically, we publish::
- a) Reviews of publications in electronic formats (CD, CDROM, CDI, on-line, diskette, WWW/MOSAIC, ...).
  - b) Reviews of print publications, events, conferences, and exhibits dealing with art, science and technology.

Accepted reviews will be published in Leonardo Digital Reviews.

Reviews of key works will also be considered for publication in the Leonardo Journal and Leonardo Music Journal published in print by MIT Press. Selected reviews will also be republished in the Leonardo Almanac book published by the MIT Press.

Authors, artists and others interested in having their (physical) publications considered for review in Leonardo Digital Reviews should mail a copy of the publication to Leonardo, 672 South Van Ness, San Francisco, Ca 94110, USA.

Event and exhibit organisers, and authors of virtual/electronic publications and events interested in having their event reviewed should send information in advance electronically (only) to [davinci@uclink.berkeley.edu](mailto:davinci@uclink.berkeley.edu)

Individuals interested in being added to the Leonardo Digital Reviews review panel should email (only) their curriculum vitae to [davinci@uclink.berkeley.edu](mailto:davinci@uclink.berkeley.edu) We are particularly seeking reviewers who can review material in other languages than english.

Unsolicited reviews are not accepted by LDR.

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< CD-I REVIEW: BLAM ! >

Necro-Amalgamated  
PO Box 208  
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Email: [BLAM1@mindvox.phantom.com](mailto:BLAM1@mindvox.phantom.com)

Reviewed by Geoff Gaines  
Email: [davinci@uclink.berkeley.edu](mailto:davinci@uclink.berkeley.edu)

Necro Enema Amalgamated in its premiere CD-I magazine brings us "BLAM!", a collection of multimedia works for the electronically and mentally wired.

On entering BLAM!, you are ushered to a choice of gates through which random articles or advertisements may appear. A table of contents permits the user to point to specific areas of the magazine. Each piece is presented in a stack of hypercards, with accompanying text, sound, and illustrations.

There is nothing subtle or casual about BLAM! . From beginning to end it is an assault on your optic and aural nerve endings. Without adequate preparation, BLAM! can inspire headaches and accute irritability. However as the pain surrenders to numbness, the substance between the explosions and reverse sampled guitars surfaces.

BLAM! is not simply a garage-band performance on a multimedia instrument. These articles would be engaging if stripped to raw newsprint. Howard Rhinegold gives an inspiring and unapologetic essay about life online. Tom Ryan and Bob Casey contribute a compelling account of life in a mental ward. Altogether fifteen pieces, with topics ranging from portable hacking to parallels of art and cruelty.

We did not buy this CD just for the articles however, and the integration of music, illustration, and animation does not disappoint. More than a shotgun- wedding of text and interactivity, BLAM! succeeds in fusing the experience into a deranged whole.

BLAM! requires a Macintosh running System 6.0.7 or later, a CD ROM drive, Hypercard 2.1, and 4 Megs of available RAM. It sells for \$25 + \$2.50 for postage.

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< AUDIO CD REVIEW: Transform: The Nerve Event Project >  
Audio Compact Disc, 1993  
Compiled by Nick Didkovsky

Punos Music  
118 East 93rd Street, Apt 9C  
New York, NY 10128, USA  
published by Cuneiform Records  
P.O. Box 8427  
Silver Spring, MD 20907-8427 USA

Reviewed by Mason Wong  
Email: davinci@uclink.berkeley.edu

"Transforms" is by 23 artists independently composing 25 tracks of experimental music, each constructed from 44 sound event sources made available on the 1991 Doctor Nerve CD "Beta 14 ok." Tracks range in length from seven seconds to 8 minutes 52 seconds.

The concept of diversity is pushed to the limit on this album. With a musical alphabet of 44 sounds, each composer has utilized a wide variety of audio, musical, and computerized methods to manipulate, process, and record their intricate expressions. Source sound samples included horns, strings, bass guitars, flutes, keyboard timbres, percussion, voices, and loads of sound effects and sonic atmospheres.

These instrumental pieces range from the academic to the ethereal, from fusion rock to the truly demented. Don't miss track 10, Steve MacLean's zany musical adventure, "Nerve 3," which jumps in and out of addictive rhythmic segments, sparring against an electronic audio wasteland of intrusive and surrounding tones.

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< BOOK REVIEW: Leonardo da Vinci: The Daedalian Mythmaker >  
Giancarlo Maiorino (1992)  
Penn. State University Press, PA U.S.A.  
ISBN 0-271-00817-2.

Reviewed by Rudolf Arnheim  
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A new book on Leonardo da Vinci cannot but attract the attention of Leonardo readers. In dealing with the artist's and scientist's work, ideas, and attitudes, the author, a professor of Comparative Literature and Director of Renaissance Studies at Indiana University, discusses also Leonardo's relation to technology. What interests him, however, is not the technical nature of inventions as such but their meaning for Leonardo as a scientist and artist in the setting of Renaissance local politics. Maiorino points out that "the wars that 'condottieri' waged on behalf of Milan, Florence, or Venice often were games of chess in which checkmate was accepted with little acrimony, and still less bloodshed" (p. 127). The fancy contraptions

Leonardo offered to the Milanese warlord Federico da Montefeltro were ingenious and in many ways revolutionary, but they were never actually executed and in fact would not have been usable under the given conditions. Similarly, Leonardo's machines were, to him, inventions on paper. His "drawings of the flying machine, the helicopter, the submarine, underwater equipment and other attempts at working out 'miracles' in mechanics and anatomy prove that his lifework was a quest after the impossible" (p.152), a mythical reflection of the ancient master magician Daedalus, with his hubristic aspirations and tragic outcomes. Leonardo ruminated on the human relation with machines - was the inventor and user the master or the victim? "If mechanics was the paradise of the mathematic sciences, his Deluge sketches and fluid mechanics must have been Leonardo's nightmares" (p. 250).

All this needs to be seen in the context of Maiorino's basic theme, namely the double focus of quattrocento culture. Humanism, the philosophy and poetics of intellectual clarity and unchangeable truth and form, is reflected in painters like Piero della Francesca or Botticelli. Its opposite is called Antihumanism by Maiorino - an unfortunate term because what is meant is not hostility to Humanism but its counterpart in an antiphony, a dialogue of give and take. This double tendency is quite evident in the work and thought of the Humanist Leon Battista Alberti, as it is in Leonardo's. As a scientist and an artist, Leonardo stresses growth, change and action; but Maiorino points out that there is an antinomy, for example, between the drawings of the embryo in the womb and the Vitruvian spread eagle figure of a man frozen in symmetrical frontality.

This "perfect cosmic figure" and some idealistic profiles are in contrast to the grotesque faces Leonardo liked to draw. They oppose the classical canon and display deviations from the norm, so typical of natural growth. His belief in the transitory character of natural and human existence showed in his stress of the sfumato in painting. As distinguished from the cold light of precisely outlined shapes, "Leonardo exploited the area of fluid interactions midway between the unflawed brightness of perfection and the brewing darkness of experience" (p.24).

The synthesis of the struggle between the antagonistic tendencies comes in two works, Saint John the Baptist and Mona Lisa. The baptist is given as a youthful androgynous figure, in whom the contrast of the sexes is led back to their pristine Platonic unity. But the figure points beyond itself in the gesture of the raised arm, which indicates that the resolving solution is attained in the Gioconda, which gives the Leonardesque smile its definitive meaning. It is the smile of those who know the vicissitudes of human strife but who no longer laugh in contempt or weep in affliction. The Mona Lisa is an image of "self-contentment" (p. 255).

It is a pleasure to read a book that is an obvious inside job. Maiorino has a family acquaintance with Italian life and attitudes, and he pays more thorough attention to Italian writers of theory and history than is generally the case. He also shares their scintillating intellect, which reinforces a similar stylistic fashion in American literary criticism. Whoever wishes to enrich the stereotype of the Renaissance

universal man will be amply satisfied by this erudite and colorful book. It refers to an impressive variety of sources and is well illustrated; but a bibliographic index would be helpful.

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< BOOK REVIEW: What computers still can't do; A critique of Artificial reason >

Herbert Dreyfus (1992)  
The MIT Press  
Cambridge, MA, U.S.A.  
420 pp.

Reviewed by Simon Penny  
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When it was first published in 1972, "What Computers Can't Do" was "widely attacked and quietly studied," to quote the back-cover notes of this edition. Dreyfus's target was the then-nascent discipline of Artificial Intelligence (AI), or rather, the assumptions on which it was built. His voice was powerfully critical, working from a philosophical position informed by Heidegger and Merleau Ponty. His critique took issue with the notion that "common sense" would be acquired as systems with limited domains of expertise (i.e. "expert systems" like Newell and Simon's Logic theorist) gathered more and more incremental "atoms" of knowledge about the world.

Central to this critique was the relationship between the body and intelligence, and the question of "understanding." As Dreyfus stated in 1979: "Intelligence requires understanding, and understanding requires giving the computer the background of common sense that adult human beings have by virtue of having bodies. . . ." In the same essay Dreyfus quotes Marvin Minsky's deliberations on the subject: "We still know far too little about the contents and structure of common-sense knowledge. A 'minimal' common-sense system must 'know' something about cause-effect, time, purpose, locality, process, and types of knowledge. . . . We need serious epistemological research in this area." Dreyfus responds: "Minsky's naivete and faith are astonishing.

Philosophers from Plato to Husserl, who uncovered all these problems and more, have carried on 'serious epistemological research' in this area for two thousand years without notable success." He continues:

"But Minsky seems oblivious to the hand-waving optimism of his proposal that programmers rush in where philosophers such as Heidegger fear to tread, and simply make explicit the totality of human practices which pervade our lives as water encompasses the life of a fish."

(Quotes are from Herbert Dreyfus, "What Computers Can't Do," Harper, 1979, Revised Edition, p. 3 and p. 36.)

The historic importance of Dreyfus's work should not be underestimated. His humanistic critique of the discipline and

of the social function of computer technology preceded by more than a decade other works in a similar spirit, such as "Understanding Computers and Cognition" by Terry Winograd and Fernando Flores (Addison Wesley), Theodore Roszak's "The Cult of Information" (Pantheon), and J.D. Bolter's "Turing's Man" (Pelican) all of which, curiously, were published in 1986.

"What Computers Still Can't Do" is not a new book, but rather it is the 1979 revised edition with a new essay at the front. This introduction has a curious tone that is simultaneously humble and crowing. In the first edition of "What Computers Can't Do," Dreyfus rallied his forces; the second restated the argument with some updating. But the first lines of the new introduction establish that we are looking at AI as an event of the past. The demise of what he calls the "degenerating research program" of GOF AI (Good Old Fashioned Artificial Intelligence) are due (it would seem) precisely to the errors he originally noted.

In support of his argument that AI is all but dead, he describes the emergence of alternative approaches, alternatives that tacitly acknowledge the problems inherent to what used to be called Hard AI. These include the connectionist model and neural network (and, one might add, Brooks's Subsumption Architecture), which sidestep the AI model of top-down, rule-based behavior. Dreyfus acknowledges and discusses perhaps the most ambitious AI project, the last remaining general expert system research project, that of Douglas Lenat. Dreyfus argues that Lenat's project will fall foul due to precisely the same philosophical dilemmas of previous attempts, though at a somewhat more subtle level.

"What Computers Can't Do" is an important book - no education, formal or informal, in the field of Artificial Intelligence is complete and well rounded without the inclusion of this work. For those who have not read the 1979 version, "What Computers Still Can't Do" is a must. For those who have, the new essay alone is worth the time.

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< BOOK REVIEW: ARTSAT >

Richard Kriesche (1991)  
Kulturdata, Graz, Austria

Reviewed by Simon Penny

"On the first day when orbiting the earth each of us pointed down to his own country. On the third or fourth day everyone still pointed down to his continent. Afterwards we looked at the earth only as one total planet."  
(Cosmonaut Sultan al Saud, Saudi Arabia)

So begins ARTSAT, a documentation of the first telematic art event between the earth and an orbiting space vehicle. This event occurred between an Austrian cosmonaut aboard the Russian/Soviet space station MIR and the artist Richard Kriesche in the Austrian city of Graz, presumably early in 1991 (the text is gloriously vague on this detail).

Many of the telematic events that I am familiar with have possessed a brand of global-village, techno-utopian rhetoric that, when interrogated, rings fairly hollow. The hollowness

arises from tacit assumptions about the universality of the English language, about access to communications technologies and services in Third-World countries, and in other ways. In ARTSAT the hardware platform (a Russian space station bearing an Austrian Cosmonaut) speaks of a degree of internationalism that renders rhetoric in the work superlative. This leaves the work free to weave a conceptual fabric from the Blue Danube, a virtual handshake, a player piano, a robotic welder, standard star maps of the Northern and Southern Celestial Hemispheres, and the number of characters in the ASCII code.

There is precious little text in ARTSAT, which is a blessing, given the translation, but a curse given the intrinsic intelligence of Kriesche's thought. Through the dark glass of (what appear to be) literal translations from the German, through the spelling mistakes and bizarre (unwitting?) neologisms, one glimpses flashes of brilliance from Kriesche, one of the most expansive thinkers in the European conceptual and telematic art scene, who is also one of its most consistent practitioners and publishers.

ARTSAT is the third book by Kriesche that I know of - it succeeds "Artificial Intelligence in the Arts: Brainwork" (Steirischer Herbst, Graz, Austria), the catalog to an exhibition at the Los Angeles municipal art gallery in 1985; and "Animal Art", a vast compendium companion to a 1988 festival of the same name.

The first couple of dozen pages of ARTSAT are text and illustrations covering aspects of the event. Of the remainder (more than 400 pages) the right-hand pages show segments of a diagram derived from star maps which was welded by the robot welder. The left-hand pages are blank silver.

ARTSAT is perplexing. Viewed from one direction, it is a lavish publication documenting a historic event, but as such, it is disappointingly insubstantial. Viewed from another direction, it is a conceptual bookwork on a grand scale.

\*\*\*\*\*

< JOURNAL REVIEW: Contemporary Impressions >  
American Print Alliance  
711 E Street NE  
Washington D.C. 20002-5231 U.S.A.

"Contemporary Impressions," a new journal by Print Alliance, publishes critical literature that catalyzes discussion and debate about contemporary art. Prints are viewed as important in the postmodern expression because of their natural ability to borrow and adapt imagery. The editors argue that printmaking immediately raises questions about the concept of originality and the role of the individual artist in a collaboration. All the major issues of today's art world, especially including cultural and political change initiated by art that reaches a wide audience, are integral to the basic concepts of printmaking.

The first issue of the journal includes an article by Ruth Weisberg on "Critical Theory and the Print," an interview with artist and writer J. Nebraska Gifford and reviews of exhibitions, books, conferences and portfolios. The second issue will address computers and printmaking, artists' books, the Rutgers University collection of prints from small presses,



and printmakers and hand papermaking.

Subscriptions to "Contemporary Impressions" are \$22.

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< JOURNAL REVIEW: Intermedia; Nuevas Tecnologas, Creacion,  
Cultura >

Orlando Carre, Director  
C/Murcia 18, bajo dcha.  
28045 Madrid, Spain  
Fax: 34-1-5284814.

A new Spanish journal "Intermedia" , to be published three times per year, began publication in Madrid in November 1993. The magazine deals with the relationships between new technology, art, science, innovation and culture. It provides information about new creations and electronic art, and includes the following sections: "Art and the Computer," "Telecommunications Art and Culture," "New Technology and Literature" "New Technology and Museums," "Virtual Reality," "Music and the Computer," "Video Art," "Latin America" and "Art and Holography." There will also be articles and information about the major electronic art shows and fairs, in Spain and internationally, and a calendar of events of this kind. The magazine will be on sale at newsstands in Spain and is also available by subscription. There will be English summaries of the articles.

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< MATERIALS RECEIVED >

Multimedia Products:

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"Walkthroughs and Flybys" CD  
Phil Shatz. Waite Group Press, Corte Madera, CA, U.S.A., 1993.  
148 pp., illus., plus compact disc. Paper, \$29.95. ISBN: 1-878  
739-40-9.

Compact Discs:

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"Et Sonner Les Coucou" Lieutenant Caramel. S.F.C.R., Bordeaux, France, 1992.

"Interferences et Plus" Das Synthetische Mischgewebe. S.F.C.R., Bordeaux, France 1991.

"Fleeting Images" John Rimmer. Ode Record Company, Auckland, New Zealand, 1993.

"Inner World" Ross Harris. Ode Record Company, Auckland, New Zealand, 1993.

"Saltwater" David Downes. Ode Record Company, Auckland, New Zealand, 1993.

"Sleep Exposure" John Cousins. Ode Record Company, Auckland, New Zealand, 1993.

"Suara: Environmental Music from Java" Jack Body. Ode Record Company, Auckland, New Zealand, 1993.

"Tides" Denis Smalley. Ode Record Company, Auckland, New Zealand, 1993.

"Ursonate"

Kurt Schwitters. Wergo, Mainz, Germany, 1993.

"Wallpaper Music"

Kim Dyett. Ode Record Company, Auckland, New Zealand, 1993.

Videotapes:

-----

"Come in and See"

Sophie Lavaud, 5, rue Clemence-Isaure, 31000 Toulouse, France.

"Love of Mine/2001 Gould/ Hurricane"

Vincent John Vincent and 20th Century Kid. The Vivid Group, 317  
Adelaide St. W., Suite 302, Toronto, Ontario, Canada N5V 1P9.

"Mandala: Virtual Reality Demo"

The Vivid Group, 317 Adelaide St., W., Suite 302, Toronto,  
Ontario, Canada N5V 1P9.

Books:

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"Architectural Diplomacy, Rome and Paris in the late Baroque"

Gil R. Smith. MIT Press, Cambridge, MA, U.S.A., 1993. 367 pp.  
Trade, \$50.00. ISBN: 0-262-19323-X.

"The Computer Artist's Handbook: Concepts, Techniques and  
Applications"

Lillian F. Schwartz with Laurens R. Schwartz. W. W. Norton, New  
York, NY, U.S.A., 1992. ISBN: 0-393-02795-3.

"Designing the Future"

Robin Baker. Thames & Hudson, New York, NY, U.S.A., 1993. 208  
pp. Trade, \$45.00. ISBN:0-500-01578-3.

"The Digital Word: Text-Based Computing in the Humanities"

George P. Landow and Paul Delany, eds. MIT Press, Cambridge,  
MA, U.S.A., 1993. 362 pp. Trade, \$39.95. ISBN: 0-262-12176-X.

"Encyclopedia of Living Artists"

Constance Franklin-Smith, ed. 7th Ed. ArtNetwork, Renaissance,  
CA, U.S.A., 1993. 160 pp. Paper, \$17.95. ISBN: 0-940899-22-1.

"Erotic Art by Living Artists"

Constance Franklin-Smith, ed. 2nd Ed. ArtNetwork, Renaissance,  
CA, U.S.A., 1992. 72 pp. Paper, \$15.95. ISBN: 0-940899-11-6.

"Global Networks, Computers and International Communication"

Linda M. Harasim, ed. MIT Press, Cambridge, MA, U.S.A., 1993.  
411 pp. Trade, \$29.95. ISBN: 0-262-08222-5.

"Intelligent Multimedia Interfaces"

Mark T. Maybury, ed. AAAI Press/MIT Press, Menlo Park, CA,  
U.S.A., 1993. ISBN: 0-262-63150-4.

"La Venezia Perfetta"

Michele Emmer. Centro Internazionale della Grafica, Venice,  
1993.

"The Network Nation"

Starr Roxanne Hiltz and Murray Turoff. Rev. Ed. MIT Press,  
Cambridge, MA, U.S.A., 1993. 557 pp. Paper, \$24.95. Trade  
\$45.00. ISBN: 0-262-58120-5.

"Personal Computers for Distance Education"

Ann Jones, Gill Kirkup and Adrian Kirkwood. St. Martins Press, New York, NY, U.S.A., 1993. 180 pp. Trade, \$45.00. ISBN : 0-312-09515-3.

"Ray Tracing Creations: Generate Photorealistic Images on the PC"

Drew Wells and Chris Young. Waite Group Press, Corte Madera, CA, U.S.A., 1993. \$39.95. ISBN: 1-878739-27-1.

"Structure in Sculpture"

Daniel L. Schodek. MIT Press, Cambridge, MA, U.S.A., 1993. 312 pp. Trade , \$60.00. ISBN: 0-262-19313-2.

"Understanding Music with AI: Perspectives on Music Cognition"

Mira Blaban, Kemal Ebcioglu and Otto Laske, eds. MIT Press, Cambridge, MA, U.S.A. ISBN: 0-262-52170 -9.

"Video Mind, Earth Mind"

Paul Ryan. Peter Lang Publishing, New York, NY, U.S.A., 1993. 4 37 pp. Trade, \$54.95. ISBN: 0-8204-1871-4.

"Virtual Reality Creations: Explore, Manipulate, and Create Virtual Worlds on Your PC"

Dave Stampe, Bernie Roehl and John Eagan. Waite Group Press, Corte Madera, CA, U.S.A. \$34.95. ISBN: 1-878739-39-5.

"Visions of the Future, Art, Technology and Computing in the Twenty-First Century"

Clifford A. Pickover, ed. St. Martin's Press, New York, NY, U.S. A., 1993. 400 pp. Trade, \$29.95. ISBN: 0-312-08481-1.

Exhibition Catalog:

"Aligi Sassu: Pinturas 1 927 - 1990"

Exh. Cat. Fabio Magalhaes, Giulio Carlo Argan and Werner Spies. Settore Cataloghi D'Arte Milano, Italy. 1992. 139 pp. Paper.

Periodicals:

"InterCommunication: A Journal Exploring the Frontiers of Art and Technology" No. 6, 1993. (Japanese)

"Interface" Vol. 5, No. 1, September 1993.

"Kultur-Chronik: News and Views from the Federal Republic of Germany." No. 4, 1993.

"Logos-blad" Vol. 15, No. 9, 1993.

"Mediagramm: Zeitung des Zentrums fur Kunst und Medientechnologie Karlsruhe" No. 12, July 1993.

"New Art Examiner. Special Anniversary Issue" Vol. 21, No. 2, October 1993.

"P Form: Performance Art Magazine" No. 29, Fall 1993.

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between artists and scientists. Contact Cynthia Pannucci, PO  
Box 040496, Staten Island, NY10304-0009 USA

.....  
LEONARDO ALMANAC: International Resources in Art, Science and  
Technology, Ed C Harris, MIT Press ISBN 0-262-58125-6  
journals-orders@mit.edu

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< END LEONARDO DIGITAL REVIEW MARCH 1994 >

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ANNOUNCEMENTS
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< TELEMATIC WORKGROUP - European Virtual Arts Community >  
Matthias Lehnhardt / Regan King  
Catherine DeCourten Cordula Flegel Markus Giltjes Dieter  
Kaitinis  
Regan King Nina Koennemann Prof.Dr. Matthias Lehnhardt  
Matthias Mayer

Hochschule fuer bildende Kuenste  
FB Visuelle Kommunikation  
Kuenstlerische Telematik/Computer  
Lerchenfeld 2, 22081 Hamburg  
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email: lehnhard@informatik.uni-hamburg.de

If you are interested in participating long-term on a project  
entailing artistic communications goaled to the construction of  
a virtual european arts institution please send a short message  
to the following e-mail address. If you know of persons who  
would be interested in such a project please send a forward of  
this mail to them.

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< 1st BRAZILIAN SYMPOSIUM ON COMPUTER MUSIC >

August 2-4, 1994  
I Simposio Brasileiro de Computacao e Musica  
CENEX - Escola de Musica  
Universidade Federal de Minas Gerais  
Av. Afonso Pena 1534  
30130-005 Belo Horizonte, MG Brazil  
Tel: 55-31-222 2251 (voice)  
Fax: 55-31-273 5429 (fax)  
Email: mauricio@dcc.ufmg.br

The 1st Brazilian Symposium on Computer Music will be held at Caxambu during the 1994 Annual Congress of the Brazilian Computer Society (SBC). Caxambu is a resort town 300 km far from Rio, Sao Paulo and Belo Horizonte. The Symposium has been organized by NUCOM (Brazilian Computer Music Society), in collaboration with the SBC and the School of Music of the Federal University of Minas Gerais.

The objective of the symposium is to discuss technical aspects of the specification, design, implementation, and evaluation of computer systems for music, as well as to present ongoing research in the field. The symposium is aimed primarily at stimulating the exchange of ideas among computer scientists and musicians, but we also welcome interested researchers from other areas such as electronics, linguistics, psychology, physics, and education.

Main areas of interest:

- 
- . Systems and languages for composition
  - . Systems and languages for sound synthesis
  - . Signal processing and sound transformation
  - . Automated music analysis
  - . Artificial intelligence and music
  - . User interface and instrument design
  - . Notation systems
  - . Psychoacoustics and cognitive models

Other topics, not covered above, will be considered by the program committee.

Paper Submissions

-----

Abstract submissions should not exceed 400 words. They can be sent by surface or electronic mail (ASCII format). Papers can be submitted and presented in Portuguese or English.

Music Submissions

-----

The symposium will include three concerts devoted to computer music. Works may involve, but are not limited to, real time interaction, tape music with or without performers, and multimedia. Composers are responsible for supplying any special equipment needed for the performance. The following equipment will be available: Computers: Sun station, 486 with DAC, Mac Quadra 700 Audio equipment: 2 channels, PA, Mixer, DAT, CD

The Grupo de Musica Contemporanea of the Federal University of Minas Gerais (Belo Horizonte) will be invited artists for the festival and are available as resources to perform works. The ensemble's instrumentation consists of: flute, clarinet, saxophone, bassoon, trombone, string bass, violin, and conductor.

Pieces for the three concerts will be selected by a committee composed of: Conrado Silva, Francisco Kroepfl, Mauricio Loureiro, and Robert Willey.

Entries should include a cassette or DAT tape and score, if available. Indicate the work's duration and describe the

technical requirements required to produce it. Information can be sent in Portuguese, Spanish, or English.

Submissions must be received in San Diego by April 25, 1994.

Send submissions to:

Robert Willey  
Center for Research in Computing and the Arts - 0037  
University of California, San Diego  
9500 Gilman Drive  
La Jolla, CA 92093-0037 USA

Submissions from Brazil send to:

Conrado Silva  
UnB - Colina  
Bloco F Apto. 05  
70910-900 Brasilia - DF Brasil

For more information contact:

Mauricio Loureiro (symposium chair)  
email: mauricio@dcc.ufmg.br  
Federal University of Minas Gerais

or:

Robert Willey  
email: bobw@sdcarl.ucsd.edu  
fax: {USA} (619) 534-7944

If you wish your materials returned include a self-addressed stamped envelope and/or International Reply Coupons for return from the United States.

Deadlines and important dates:

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April 25, 1994 - Submission of abstracts and compositions  
May 25, 1994 - Notification of acceptance  
June 15, 1994 - Submission of the final paper

\*\*\*\*\*  
< The Pong Festival - A Brown University Symposium for Art and  
Technology >

April 13-16, 1994

Tom Meyer  
Box 1910  
Brown University  
Providence RI 02912  
Tel: (401) 863-7693  
Email: twm@cs.brown.edu

The Pong Festival is a four-day celebration of artists who use technology. It features internationally-renowned and local artists working in hypertext, electronic music, video, performance art, holography, installation pieces, and 2D and 3D graphics. We invite any artists interested in visiting Brown University for the festival to contact us about including their work.

The festival brings together participants from the many Brown University programs which address issues of art and technology:

Malcolm S. Forbes Center for Modern Culture and Media  
Department of Visual Arts

MacColl Studio for Electronic Music  
Graphics Group, Computer Science Department  
Program in Creative Writing

Featured Speakers  
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Tod Machover, internationally-known computer music composer and MIT Media Lab Professor, will be giving a lecture/demo.

Graham Weinbren, avant-garde multimedia artist, will be speaking on his recent installation work.

Performance  
-----

We will have two evenings of performances, including electronic music compositions, video, and dance. For more information, or if you would like to present a work in this segment, contact Todd Winkler (Todd\_Winkler@brown.edu).

Hypertext Creative Writing  
-----

We will be having a program of readings and explorations of creative hypertext works. For more information, or if you would like to present a work in this segment, contact Bob Arellano (st001747@brownvm.brown.edu).

Gallery Art Show  
-----

There will be space available for galleried work. For information about showing your 2D electronic art or installation pieces, contact Anne Morgan Spalter (ams@cs.brown.edu). For submissions of holograms, contact Mary Lou Jepsen (mlj@cs.brown.edu).

Audience-based Performances  
-----

We will be closing the festival with pieces which encourage complete audience participation -- dance music, large-scale interactive works, etc. If you are interested in such a performance, contact Moe Methot (ap201027@brownvm.brown.edu) or Shawn Shea.

Panel Discussions  
-----

If you are interested in proposing an afternoon panel discussion, please contact Tom Meyer (twm@cs.brown.edu) for guidelines.

Creative Workshops  
-----

We would like this to be the occasion for artists to produce quick collaborative pieces. If you would like to organize a workshop on one of the areas of the festival, please contact Tom Meyer (twm@cs.brown.edu).

\*\*\*\*\*

< Concert Opportunity for Electroacoustic Music >

Composer's Resources Inc.

Howard Wershil

570 Sherringham Court

Roswell, Georgia 30076 U.S.A.

Tel: 404-998-7286

Email: musrst@gsusgi2.gsu.edu (Robert Thompson)

Composer's Resources Inc. of Atlanta Georgia USA is seeking innovative computer music and electronic music works for an upcoming high-profile concert event - "An Autumn Evening's Musical Sojourn" - to take place in the Fall of 1994 and possibly to be repeated several times in the future..

Composer's Resources is seeking tape music works (computer generated, analog electronic, musique concrete etc.) which are aesthetically oriented to quieter, introspective, possibly ambient compositional styles.

Send submissions on DAT, or open-reel analog tape. Please include program note, biography and address information.

\*\*\*\*\*  
< Call for Electronic/Computer Music Works >

Robert Thompson  
Atomic Cafe Electroacoustic  
c/o P.O. Box 672902  
Marietta, GA 30067-0049, USA

Concert: Atomic Cafe: New Sounds of Electroacoustic Music  
DATE: June 5, 1994  
PLACE: 8-10pm, Georgia State University Recital Hall, Atlanta Georgia

Composers interested in having their experimental electronic and computer music works presented in a professional concert setting in Atlanta, Georgia USA are invited to submit works for consideration.

Deadline for submission: May 20, 1994

Submit cassette tapes or DAT, bio, program note and SASE. DAT TAPES ARE PREFERRED Works longer than 15 minutes cannot be considered.

Selection will be based upon technical quality and artistic merit. Selected works must be resubmitted on DAT for concert presentation. Composers will be notified of concert date(s) and will be sent programs as confirmation of presentation.

\*\*\*\*\*  
< Publishing Opportunity: Computer Music Compositions for Independent Release >

R. S. Thompson, Artistic Director  
Computer Music Series  
c/o Aucourant Records  
P.O.Box 672902  
Marietta, GA 30067-0049 USA

Aucourant Records Computer Music Series is seeking high quality computer music works for consideration for future compact disc publication. Interested composers should send detailed CV, audio recording of submission on either high quality cassette tape or on DAT, along with program note and biography.

Criteria is based on high quality of technical merit and artistic excellence. Innovative, future-oriented music is actively sought. Enquire via post for further information.  
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< New Dates for ISEA 94 >

Email: isea@uiiah.fi

The International Symposium on the Electronic Arts to be held in Finland will now take place from Aug 20-25 1995.

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< ISEA 95 Announcement >

Sixth International Symposium on Electronic Arts

October 8 - 14, 1995

EMERGENT SENSES -- ISEA 95 Montreal

Agency, Community, Corporeality, Meaning

"Emergent Senses" captures several of the deepest currents now flowing through electronic culture:

Through one eye, it points to the emergence of the expanded and mutated sensorium under construction by today's experimenters in media arts and science: new ways of combining seeing, hearing, and feeling in virtual environments, and new ways of extending our senses through electronic technology. It points further to the philosophical and social challenges to individual identity and community which these new experiences pose, as well as to a profound transformation of "being" implied by the shifting ratio of the senses created by these changes.

Through another eye, "Emergent Senses" highlights the unfolding of meaning -- the emergence of sense -- from the characteristics of software-based art. Interactive forms in creation, performance, and education suggest a new kind of "experimental humanism", which recalibrates the roles of artist and audience, creator and critic, teacher and student. Or does it?

Finally, "Emergent Senses" acknowledges and invites investigation of the powerful attraction of biological and evolutionary metaphors in many fields today, from artificial life to machine understanding, from composition and design to editing and refining artistic materials.

Subthemes

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1. Agency

- Changing roles in creating, transmitting, and receiving art: from designer, programmer, user to creator, tool-maker, interactor;
- Authorial fluidity and the paradox of distributed control;
- Collaborative environments for the creation of interactive and adaptive content;
- The aptness of genetic and biological metaphors: artworks as phenotypes, evolutionary form, artistic understanding as adaptive behaviour;
- Ownership of creative work: intellectual property conventions from across-cultural perspective.

2. Community

- Global art networks in a post-national age: who designs them? how do they look and feel? who gets them? what are their effects?;
- The presence of place: local, regional, and supra-national identity within hypernetworked arts communities;

- Amateur creativity and shared experience: access, tools, and systems for those out of the loop;
- Public policy objectives and agendas: what role should governments play in developing legal, funding, and technological frameworks for electronic arts;
- The politics of access: the interaction of social and professional roles, artistic genres and political power.

### 3. Corporeality

- The "metrics" of multi-modal perception;
- Extensions and mutations of the five traditional senses;
- Digital synaesthesia: the art-science of programming sensory presence and absence, effects of information/digital overload;
- Physics of new media: devices for machine capture and modelling of artistic virtuosity
- Hybridization of personal identity: gender, personality, ethnicity
- Porous body boundaries, cyborg theory, and experimental practice

### 4. Meaning

- Critical languages/vocabularies for new subgenres of "elastic" media
- Constructing meaning in open-structure artworks
- Machine understanding of artistic processes, and the general applicability of research to human-machine interaction
- Theories of techno-culture and historical analogies from previous media paradigm shifts
- Media literacy and attendant issues in aesthetic education and training
- Philosophical understanding of "time irreversibility"
- The "post-aesthetics" of digital art: oscillation between "disorientation" and "stability" (Vattimo)

Emergent Senses (ISEA95) invites submissions by scholars, artists, scientists, critics, and educators, in the following categories.

Papers, Panels, Exhibitible Artworks (2,3D art, media-installations, virtual environments), Performance, Telematic Projects, and Workshops.

A Detailed REQUEST FOR SUBMISSIONS will be issued shortly. To request further information and join the distribution list, send email to ISEA95@er.uqam.ca

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< New Voices, New Visions Competition - Update >

The Voyager Company  
 578 Broadway, Suite 406  
 NY NY 10012 USA  
 Tel: 212.431.5199  
 Fax: 212.431.5799  
 Email: Voyager@applelink.apple.com

This is an update on the "New Voices, New Visions 1994" competition, designed to encourage experimental work in the digital medium. The competition is calling for works on any subject, in any digital format. The emphasis will be on experimental work rather than finished "products." The jurors, each a well-regarded member of the arts community, will judge submissions on merit. New Voices, New Visions will be

advertised extensively to art, film, and design students and to artists, musicians and writers. The competition will award three first prizes of \$5,000 each.

The entry rules are very simple: we will accept digital works in any length in any format, and on any subject, so long as it runs on a computer. Your material must be postmarked no later than June 30, 1994. This is an extended deadline. Winners will be announced in the beginning of September 1994. All work submitted will remain in the New Visions, New Voices archive. You will retain all rights concerning sale of your work.

It is our pleasure to announce that the following individuals have agreed to serve on the jury that will meet this summer to pick the three winning entries: artist Laurie Anderson; author Nick Bantock; musician/poet Michael Franti; artist Jenny Holzer; film director Allen Hughes; film director Mira Nair; a member of The Residents; and author/artist Art Spiegelman. The winners will be announced in September 1994.

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PUBLICATIONS
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< Networked Scholarship: MIT's New, Electronic  
CHICAGO JOURNAL OF THEORETICAL COMPUTER SCIENCE >

Rebecca McLeod/Michael A. Darden  
JOURNALS ADVERTISING/PUBLICITY  
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Tel: (617) 253-2866  
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Growing technological innovations and dwindling library resources are changing the dynamics of scholarly journal publishing. Additionally, many of today's scholars desire quicker and better peer review, research dissemination, and article cross-reference methods. Faced with these concerns, three University of Chicago computer science professors, The MIT Press, and the MIT Libraries decided to work \*together\* to publish a new, peer-reviewed electronic journal: the CHICAGO JOURNAL OF THEORETICAL COMPUTER SCIENCE (CJTCS). Produced by a novel electronic publishing partnership among university faculty, publishers, and librarians, CJTCS will premier in late spring 1994.

The CHICAGO JOURNAL is the first electronic publication to present peer-reviewed scholarship on theoretical computer science. Researchers in the field investigate mathematical foundations of computing, and CJTCS's articles will cover major areas of the discipline, including, but not limited to, complexity theory, algorithms, logics of programming, distributed and parallel algorithms, database theory, and computational geometry.

Published article by article on the Internet in LaTeX source electronic text format (Postscript version provided also), the CHICAGO JOURNAL OF THEORETICAL COMPUTER SCIENCE will be a fee-based electronic publication. Both the MIT Libraries and The

University of Chicago Library will maintain electronic archives with authoritative versions of the CHICAGO JOURNAL's text. As well, both libraries are committed to keeping their archives compatible with the latest advancements in electronic technology.

Among other features, CHICAGO JOURNAL articles will have an associated file of refereed forward pointers that readers can use to refer to subsequent papers, results, and improvements relevant to a published article. In order to peruse the journal's advertisements and notices, subscribers can request CJTCS's file of the same from The MIT Press files server (an electronic database). If there is enough demand, individual subscribers may eventually be able to request annual paper volumes of the journal's articles. Nonsubscribers may purchase paper copies of individual CJTCS articles from the MIT Libraries and electronic copies of articles from The MIT Press.

CJTCS library subscribers have permission to use the CHICAGO JOURNAL in much the same manner that they would use a paper publication. These subscribers can do the following: store the journal on a library-controlled files server (for local access); print out articles for the library's periodical collection, its reserve reading collection (if requested by a university member), or for a patron's personal scholarly use; place the journal or a list of its articles on the campus's electronic network (for local use); share printed or electronic copy of the journal with other libraries under standard interlibrary loan procedures; and, convert material from the journal for storage in another medium (microfilm/fiche, CD).

For several months, CJTCS's premier has generated wide interest in academic and computer network communities. The July 1993 ARL--a newsletter of the Association of Research Libraries--mentioned that The MIT Press was considering a proposal for this electronic journal publishing partnership. And in January 1994, the American Association of University Presses and the Coalition for Networked Information (cosponsored by ARL) announced that they had selected MIT's CHICAGO JOURNAL OF THEORETICAL COMPUTER SCIENCE partnership as one of 13 other university projects to study, develop, and enhance networked information resources.

CHICAGO JOURNAL OF THEORETICAL COMPUTER SCIENCE readers are scientific, academic, and student researchers of theoretical computer science. Initial circulation: Over 300 libraries worldwide.

#### ABOUT THE EDITORS

Janos Simon, Michael O'Donnell, and Stuart Kurtz are Professors in the Department of Computer Science at the University of Chicago.

Review copies are available at the discretion of the publisher. Published article by article on the Internet, annual subscription rates are \$30.00 for individuals and \$125.00 for institutions. For ORDERING INFORMATION, contact the MIT PRESS JOURNALS circulation department, (617) 253-2889 (PHONE), (617) 258-6779 (FAX), or JOURNALS-ORDERS@MIT.EDU.

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< Call for Submissions - A Multimedia Roundup of the Best and the Brightest >

Cliff Hall, Managing Editor  
c/o Deleriously Serious Softworks  
Rt 2 Box 369  
Johnson City, TN 37601  
Email:75310.3013@compuserve.com

Deleriously Serious Softworks is putting together a new CD-ROM magazine which will bring together a variety of interesting people and projects in a multimedia environment. This magazine will be a platform for articles, project announcements (and calls for participation in them like this one), any-media artwork, field reports in science, alternative music, technology, and art. The magazine will also feature lists of Internet sites, bulletin board systems, mailing lists, newsgroups, and net.personalities - what they have to offer, and how to get to them. The magazine is currently presented in the MS-Windows Environment, with a version coming soon for Macintosh.

This letter is being sent to a selected group of list managers/sysops as an opportunity for you to gain the attention of potentially interested parties who may not yet have a modem, Internet access, or knowledge of your site/list. If the list manager/sysop chooses, he/she may reply with any information about the site/list they manage. Please pass this message on to your group if they have projects they are working on that they'd like to describe (and even call for participation in), or artwork, music, fiction, etc. that they might like to contribute and see published. Site/list managers responding with information about their lists/groups will be included in our Online Directory section. You may include animations, samples, MIDI sequences, still images, etc. to be launched with your text entry to plug your cause. It's like free advertising!

Individuals contributing original articles, reports, comic strips, artwork, music, etc. will receive a complementary copy of the magazine. Also, the 'About the Author' section is your own personal soapbox. Include contact info, interests, rants, raves, whatever. We are also looking for multimedia 'columnists' to do monthly reports from their chosen fields of interest. If you have a good idea for a column, here's your chance to score a free subscription.

If you have an interesting piece of software/hardware, music, etc. you'd like to get the word out about, ask about our reasonable advertising rates. We will be accepting product announcement/press releases, but those printed will be limited to the most interesting and useful. Also, list managers/sysops who submit interesting threads from their list/conferences will receive free copies of the issue in which that thread is published. So if you would like to participate (or just find out how to get a copy) let us know. If you know someone who might, let them know.

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JOB ANNOUNCEMENTS
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< Executive Director, San Francisco Cinematheque >

Search Committee  
San Francisco Cinematheque  
480 Potrero Ave.  
San Francisco, CA 94110 USA

The San Francisco Cinematheque seeks an Executive Director to provide management and organizational leadership for one of the foremost experimental film/video centers in the U.S. The Executive Director will be part of a three-person staff, working with the Artistic Director and Office Manager as well as the Board of Directors.

The strongest candidates will demonstrate a knowledge of and prior involvement in avant-garde film and video, and a commitment to furthering the Cinematheque's artistic mission. Although initially working under the supervision of the Artistic Director, the Executive Director should be able to play a role in shaping a vision for the continuing development of the Cinematheque.

Primary Responsibilities:

- Fundraising, including grant research and preparation, donor campaigns, and marketing initiatives.
- Financial Management, including payroll, accounting, cash flow, tax returns, and budgeting.
- Board of Directors, attending Board meetings, serving on committees, and helping carry out Board-initiated projects.
- Administrative Management, having primary responsibility for day-to-day operating needs while sharing this responsibility with the Artistic Director and Office Manager.
- Advocacy of the Cinematheque and its artistic philosophy in local, regional, and national arenas.

Qualifications

- Minimum of 5 years experience, preferably working with small non-profit art organizations, ideally in the field of experimental film and video.
- Proven success in fundraising, including creative responses to new opportunities.
- Written and oral communication skills, and a facility with numbers.
- Organizational skills including flexibility, attention to detail, follow-through, decision making, and the ability to work with others.
- Experience with word processing, spreadsheet, and data base programs.

Salary: Currently \$20,000/year, 32 hours/week.

Benefits include flexible schedule, vacation, and health insurance.

Application Deadline: Apr. 18, 1994

Start Date: Sep. 1, 1994

To apply, send resumes to the Search Committee. Please mention that you saw this announcement online. The S.F. Cinematheque is an equal opportunity employer. Minority and women applicants encouraged.

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available on MIT's techinfo system, which is also their gopher service. To gain access to this, telnet to techinfo.mit.edu.

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select 2) Around MIT - Offices & Services/MIT Press.
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select 5) Journals 1993
select 6) Leonardo Electronic Almanac
select 1) Guidelines for Submission
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Past issues of Leonardo Electronic Almanac are available through MIT's list server system. To get an index of the archive, send email to listserv@mitvma.mit.edu. The "subject" component of the email message is irrelevant, but the body of the message should contain "INDEX LEONELEC". The output of this request looks like this:

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LEONELEC 93-00001   PRV OWN V       77   857 93/10/07 08:05:56
-> Leonardo Electronic Almanac - Volume 1, Number 1
LEONELEC 93-00002   PRV OWN V       73  1577 93/10/06 13:00:25
-> Leonardo Electronic Almanac - Volume 1, Number 2
```

To retrieve an issue of LEA, send email to the same list server address, with a message body containing "GET LEONELEC FILETAG", where the FILETAG is replaced with the file number appearing after "LEONELEC". In the above example, one would request "93-00001" for LEA 1:1, and "93-00002" for LEA 1:2.

Submission Guidelines and Past issues are available on the MIT Press file server via ftp. The anonymous ftp server is mitpress.mit.edu. The directory containing the files is pub/LEONARDO/Leonardo-Elec-Almanac. See the README file in that directory for details.

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|      LEA      |
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===== < End of Leonardo Electronic Almanac 2(3) >

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