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                  |  INTRODUCTION  |
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< This Issue >
                        Craig Harris
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This issue presents extensive information about a panel session
that I chaired, entitled "Rewired: New Tools and Technologies",
created for the Change Agents 97 event, a public art
preconference for the 1997 Americans for the Arts Convention. I
was fortunate to be able to work with some remarkable people in
preparing this panel, and I am happy to be able to provide some
of the details here for LEA readers. The Feature Article about
this panel includes a profile of web artist Piotr Szyhalski, an
artist from Poland living in the United States who takes the
concept of Public Art to the World Wide Web. Eduardo Kac provides
an intriguing perspective about the importance of the Mars
Pathfinder mission to modern culture and the aesthetic value of
that telepresent event.

Another artist from Poland also living in the United States
appears in the LEA profile this month. Miroslaw Rogala is an
artist working with new media who is also active in the Public
Art domain, so his inclusion in LEA this month is quite
appropriate and illuminating on the subject. Works by both
Szyhalski and Rogala can be found on the web, and I encourage you
to visit and participate in the works.

Leonardo Digital Reviews is quite informative this month, with
insights into the nature of data presentation, the "nature of
nature", and the nature of Islamic art. The Opportunities and Announcements
sections are quite dense this month, some of which are subject to
some extremely short deadlines. So we have tried to include as
much information as might be needed to fully participate without
extensive searching for additional materials.

LEA continues to grow, as can be seen in this issue and in the
developments taking place on the web site. Our staff is hard at
work developing new content, and on improving access to the
archives. New works for the LEA Gallery should be appearing soon,
and we're developing several articles and
individual/institutional profiles for forthcoming issues. Send in
material, and take advantage of LEA as a publication venue!
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                 |              |
                 |   FEATURE    |
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< Change Agents 97 >
                        Craig Harris
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Craig Harris, Session Chair
Leonardo Electronic Almanac
Email: craig@well.com

CHANGE AGENTS 97
A Public Art Preconference for the 1997 Americans for the Arts Convention

Changes are underway to broaden or redefine roles and responsibilities,
confronting the expanding public art panorama, and the increasingly
vital role served by public art agencies and program administrators.
Some have revamped their missions, some have developed innovative
public-private partnerships; and some want to change the way they do
business. Most recognize their vital role as change agents within their
communities. All must brave the winds of change. This event addresses
the why and how of public art administration today:

Re-tooling: Directing change, the gatekeeping process, alternative funding,
and new organizational models
Re-grouping: Engaging schools and libraries, new public art curricula, tools

and technology, value-added thinking, and smart maintenance strategies
Re-invigorating: Exploring new hybrids, temporary activities, socially
relevant efforts, nurturing new talent, and encouraging broader participation
Re-viewing: Walking and bus tours, resource room/on-line chat room, CD-ROM
demonstrations, networking breaks, and one-on-one consultation sessions
Re-joicing: Lively evening celebrations, improvisational events, and artful
meals.
Keynote speakers included internationally-renowned artist Siah Armajani; and
William Morrish, director of the Design Center for the American Urban
Landscape at the University of Minnesota.
Panel topics included: Directing Change, Broadening Support, Critical
Directions, Keeping the Art in Public Art, Public Art in Rural Communities,
and New Tools and Technologies.
FORECAST Public Artworks, a non-profit organization based in the Twin
Cities, helped to coordinate Change Agents 97, the 1997 public art
pre-conference for the Americans for the Arts convention in Minneapolis
June 5-7 at the Hyatt Regency Hotel. Chaired by David Hoyt Johnson, of
the Tucson-Pima Arts Council, with assistance from a national and local
steering committee, the primary audience served by Change Agents 97 is
public art professionals, especially those associated with local arts
agencies (from New York City to Seattle). Other audiences include
artists, students, design professionals, service groups, presenting
organizations, educators, civic leaders, and community development
agencies. Over 150 public art program administrators participated.
FORECAST Public Artworks, established in 1978, has a two-fold mission:
+ to support artists' exploration of the public realm, and
+ to educate the public about the field of contemporary public art.
In addition to providing emerging artists of different disciplines
with funding and technical assistance, Forecast publishes a national
journal Public Art Review. For more information contact:
Forecast Public Artworks
2324 University Avenue W., Suite 102
St. Paul. MN 55114
Tel: (612) 641-1128
Email: forecast@mtn.org
The panel session profile presented below explores issues
that are relevant to public art as transformed by the integration of new
media into the culture.

REWIRING: NEW TOOLS AND TECHNOLOGIES

Introduction
The development of new technological resources affects many
aspects of the fields intersecting with what we consider to be Art. The
impact is being felt whether we are talking about the creative act, the
medium, the artifact, or its dissemination in public view. This is
transforming the ways that we learn, communicate and process
information, and we see it in the artist's studio, schools, performance
halls, the museums and art institutions.
The existence and economic viability of a technology like the CD-ROM - a
basically low cost (finally) multimedia distribution system - makes it
possible for enormous audiences to have an artistic encounter in the privacy
of their own home while artists explore the rich domain of engaging unknown
audiences in an interactive mutual exchange. Artists are exploring the
sense of place, identity and the nature of cyberspace while millions of
people are using the Internet - a multimedia communications technology -
transforming concepts of access and ownership, and challenging the
methods we use to interact with art and each other.
Kindergartners know how to use new media to create art; sixth grade
students are involved in every aspect of information collection, design
and implementation for the World Wide Web; 8th grade students use digital
multimedia editing systems to create art and presentations; artists of
exceptional quality and ingenuity collaborate with researchers of the
highest caliber to discover each other's worlds; and arts administrators

are integrating new media as an important resource in disseminating the work
that falls in their realm of interest, whether or not the art itself makes
use of the new media. These issues cover a broad span that we worked to
illuminate in this session, where we explored the definition of public,
the nature of art, and the meaning of public art.
The group addressed the following topics:
    * Art created for the web
    * Art documentation employing new media
    * New media resources like QuickTime VR
    * Issues relating to art presentation and documentation
    * Challenges relating to technological and human resources
The creation and implementation of new media resources in all of
these areas affects our definition of Public Art. The concept of
what is public has been transformed by technology. The web is an excellent
example of how communities are being created and (re)defined. Even the
concept of art is transformed, not only by the web, but by the entire nature
of the shared experience in the context of computer-based, interactive art.
Expectations are changed, placing new challenges on the audiences as well as
the artists, documenters and presenters.
The panel members were selected to reflect the gamut of activities affected
by new media resources, from artists to those concerned with preparation and
delivery of content in a variety of forms and functions:
   Craig Harris (Session Chair): Executive Editor, Leonardo Electronic Almanac
   Piotr Szyhalski: Artist creating art on the World Wide Web
   Rob Wilkinson: Art on File, Seattle, WA.
   Barbara Ford: President, American Library Association, Richmond, VA.

PANELIST BIOS AND ABSTRACTS

Piotr Szyhalski
Minneapolis College of Art and Design
2501 Stevens Avenue South
Minneapolis, MN 55404
Tel: 612.874.3682
Fax: 612.874.3704
Email: Piotr Szyhalski@mn.mcad.edu
URL:
     http://www.mcad.edu/home/faculty/szyhalski/piotr
Designer and Illustrator Piotr Szyhalski came to United States in 1990
from his native Poland to teach at the School of the Museum of Fine Arts,
Boston. During the following years, he has maintained a furious pace:
teaching; showing his work internationally in solo and group exhibitions;
performing; winning grants and awards; and publishing.
With two MFAs from the Academy of Visual Arts in Poznan, Poland; one in
drawing, the other in poster design, Szyhalski has what Andrea Nasset,
MCAD Vice President, Dean of Academic Affairs calls, "a great breadth of
cultural experience and artistic accomplishment; an engaging mind and
energetic devotion to teaching." Moving between fine arts and design, he
began producing art on the Internet in 1995, and his work 'The Spleen'
has been featured in both "Wired" and "Hotwired", "I.D. Magazine",
"Wall Street Journal", "Applied Arts Magazine", and "Public Art Review".
'The Spleen' has received numerous on-line awards and was recognized
by the POINT Survey as one of the Top 5% sites on the Internet. 'The Spleen'
is also currently featured as one of eight sites offering Web-specific art
in the Electra '96 exhibition at the Henie-Onstad Art Center, Norway.
Szyhalski works at the Minneapolis College of Art and Design, where he
mentors graduate students and teaches graphic design, illustration, fine
arts, and liberal arts including his popular course, "POLITPROP: Art for
the Broad Masses of the People," through which students are exposed to
the historical and contemporary concepts of propaganda art. Says
Szyhalski, "It is through my interest in politically inclined art as
well as the understanding of the importance of artists' active presence
in the life of any society that defines the basis on which POLITPROP is

founded."

ABSTRACT AND WORKS:

The Will Power Clinic:

   'The Will Power Clinic' is a new psychological instrument to help you
find order and unity in your emotional and intellectual life, and to
gain insight into your own thoughts and actions. Now, because of advances
in technology, you can test yourself on line in the privacy of your home
or office. Please respond to each and every question or your results will
be inaccurate. Do not spend too much time thinking over each question.
Give the first, natural response as it comes to you. In some cases, the
questions may be too short to give you all the information you may want,
pick the response that most readily comes to mind then move on. Never ask
others to answer the questions for you.

The Chest Piece:

   "The time gains distinctly different dimensions as experienced here and
there. Thoughts follow paths charted in mutually exclusive languages.
The space manifests itself in ways as drastically opposing as the difference
between touching and being touched."

The Electric Posters:

   For you and your family's living pleasure! In easy-to-follow words,
show-how pictures and can't go wrong projects, 'Electric Posters' explains
just how enjoyable life can be. Imagine your joy in seeing beautiful
things come to life!

The Folkways Archive:

   "Posters are a universal medium, easy and inexpensive to produce.
Properly placed, they cannot be avoided. They are generally emotionally
colored, intended primarily to influence emotions and gain emotional
support. The message of a poster should be clear and normally should
occupy the topical center of the poster so that it will be read first.
Slogans should be highlighted. The use of pictures and illustrations
should be directly related to the main propaganda point of the message;
it should add unity, implying support for the message."

Amends:

   Seven Daily Exercises for those who want to start each day with a
few minutes of thought and meditation.

Poison:

   "In our modern day, the inventive genius of man perfected a machinery
of communication which, while speeding up and extending the influence of
information and ideas, gave propagandists a quick and efficient system for
the spread of their appeals. This technical equipment can be used in the
interest of peace and international good will."

One Contradiction:

   "Dialectics is the teaching which shows how opposites can be and how
they happen to be (how they become) identical--under what conditions
they are identical, transforming themselves into one another--why the
human mind should take these opposites not as dead, rigid, but as
living, conditional, mobile, transforming themselves into one another."

The Unchangeable:

   A Screen Play in One Act/Three Scenes. "Those in servitude to any
kind of fear, or who are carrying burdens of grief, poverty, disappointment,
anxiety, or melancholia, will find 'The Unchangeable' a free and sovereign
remedy. To any who are overcome by, or in danger of yielding to envy,
jealousy, or crime, it furnishes not only an antidote but a radical cure.
There are no limitations to its power." (Note that images at the end of
each page link you to the subsequent pages.)

The Preamble:

   "Verily, when a person departs from this world, he goes to the air.
It opens out there for him like the hole of a chariot wheel. Through
that he goes upwards. He reaches the moon. It opens out there for him
like the hole of a drum. He is becoming one, he does not see, they say;
he is becoming one, he does not speak, they say; he is becoming one, he
does not hear, they say; he is becoming one, he does not think, they say;
he is becoming one, he does not know, they say."

The Fire Serpents:

Habit makes us what we are. Every act and every thought grooves the path which we shall take when the emergency leaps out from the ambush upon us. For this reason it is critical for us to prepare for the event before it arrives. It's too late to get insurance when the house is afire.
"Wegiel"/"Coal":

"Wegiel"/"Coal" explores relationships between the concepts of language, culture and forgetting, as well as the tendencies of abandonment and relocation in the context of human memory. It consists of three parallel experience platforms: 'The Situation' (an installation in a gallery space), 'The Manual' (a printed book-work) and 'The Process' (a WWW composition). Each part of "Coal" fulfills the remaining two. Each area, however, is an independent conceptual entity, challenging the subtle balances between the notions of verbal and visual, foreign and familiar, understandable and obscure.

The Final Analysis:

"Life as a whole, from the simplest to the most complex organisms, including man, is a long series of equilibrations with the environment-- equilibrations which reach the highest degree of complexity. And the time will come, distant or not, when mathematical analysis based on natural science will express in majestic formulas of equation all these equilibrations, including, in the final analysis, itself."

Moving Force:

A visual statement of infinite capacity.

V:

The Victory page is designed as 'The Spleen's' contribution to the Webtronix - an art project originated in Brussels, Belgium by the ISDM, attempting to establish "[...] an infinite, interactive artwork in progress, maintaining an ongoing aesthetic dialogue within the web-community worldwide." "It is a message of good cheer to all the People, to let Them know that They have behind Them art workers who will not flinch or weary of the struggle."

Rob Wilkinson
Art on File 1837 East Shelby
Seattle, WA 98112 USA
Tel: 206.322.2638
Fax: 206.329.1928
Email: artofile@wln.com

Colleen Chartier and I founded Art on File 15 years ago to document the new directions in contemporary public art in North America. We have broadened this topic to include innovations in public sector design, including architecture, urban design and landscape architecture. As researchers and photographers we have traveled to and photographed most of the projects we feature each year in our catalog. For the past eight years, we have been involved in numerous educational software projects and prototypes as consultants, content providers and publishers. For the past several years we have been building a collection of QuickTime Virtual Reality resources which supplement our current 35mm and digital images. We produced all of the photography and QTVR segments in the new "Public Art Seattle" CD-ROM. I have a Master Degree in Urban Planning and Design from the University of Washington, obtained in 1972.

ABSTRACT

My discussion will focus on how new media and communication technologies can be used by public art coordinators to involve artists and residents in the process of creating public art. My talk will focus on the use of digital content that includes voice, still images and QTVR to present new site opportunities for art to artists, while at the same time providing citizens with the opportunity to contribute their own ideas. I will also explore the use of the Internet as an effective communication technology to deliver this new content and to frame discussion on a wide range of related topics. The CD-ROM "Public Art. Seattle" was created by ART on FILE and Electric Fish for the Seattle Arts Commission. This product will be used to show examples of this new media.

Barbara J. Ford
President, American Library Association
Executive Director, University Library Services
Virginia Commonwealth University
901 Park Avenue, PO Box 842033
Richmond, VA 23284-2033
Tel: 804.828.1107
Fax: 804.828.0151
Email: bjford@gems.vcu.edu
Barbara J. Ford, the executive director of the Virginia Commonwealth University Libraries, has been elected president of the American Library Association (ALA) for the 1997-98 term. Ford is a member of the Virginia State Council of Higher Education Library Advisory Committee and Virtual Library of Virginia Steering Committee. Also, she serves on the Commission on Information Technology for the National Association of State Universities and Land Grant Colleges. She travels around the world to address such topics as information literacy, the future of academic libraries, international cooperation among libraries, and virtual libraries.

ABSTRACT

Twelve Revolutions:

The global world, restructuring of organizations, information as the most valuable currency for exchange, telecommunications revolution are all changing the world in which we live and work. Technology can decentralize, globalize, harmonize and empower. Issues include equity of access, privacy, information overload. This presentation elaborates on twelve revolutions that are shaping the organization and delivery of services for libraries. The organization and delivery of services will be shaped by a series of radical changes in the following areas.

QUALITY. Dictating a new philosophy of service and an expanded focus on users as customers.

REENGINEERING. Demanding fundamental rethinking of processes and structures in the face of economic trends and expanding market competition.

DEMOGRAPHICS. Reflecting dramatic trends in the diversity of the populations and the sectors served by higher education.

PERSONAL COMPUTING. Expanding the power to access, analyze, and control information individually.

ELECTRONICS. Producing vast amounts of digital information in all media and developing increasingly intelligent software to enable effective search and retrieval.

NETWORK. Creating a vast telecommunications web and critical platforms for organizing and delivering a renaissance in personal communication, publishing, learning, and commercial experimentation.

MTV GENERATION. Cultivating a generation of new learners and consumers who demand a more graphical, integrated, and interactive multimedia presentation of information.

VALUES. Highlighting the growing political schisms in society and the increasing threats to intellectual freedom, privacy, and the open flow of information.

ACCOUNTABILITY. Requiring new strategies for organizational support and survival as funding agencies, investors, and political leadership seek to control costs and assess productivity and quality.

HIGHER EDUCATION. Redefining the nature and focus of learning and scholarship in colleges and universities as institutions seek to reposition themselves as agents of economic growth, social change, and upward mobility.

PARTNERSHIP. Promoting higher levels of cooperation and collaboration among organizations as a fundamental requirement of success and as a toll of resource sharing.

THE KNOWLEDGE WORKER. Dismantling many of the traditional and rigid definitions of job and employee, and encouraging a team-based workforce of self-adapting and self-improving individuals. The virtual global, digital gateway libraries will grow into the next millennium.
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< Live From Mars >
Eduardo Kac
Assistant Professor of New Media
University of Kentucky, Dept. of Art
207 Fine Arts Bldg.
Lexington, KY 40506-0022
Dept. of Art Phone: (606) 257-8151
Dept. of Art Fax: (606) 257-3042
E-mail: ekac1@pop.uky.edu
URL:
    http://www.uky.edu/FineArts/Art/kac/kachome.html
Today, July 4, 1997, is an exciting day for art. Although the art of
telepresence has been consistently explored since the late 1980s, today
the landing of the Mars Pathfinder spacecraft brought telepresence to the
masses. This historic event rekindled the drama of distance and the
cultural meaning of telepresence on the imagination of the general public,
reverting the numbing and soothing effect of habitual televised entertainment
and newscasting. In the terrestrial afternoon, Pathfinder sent the first
images from the surface of Mars ever transmitted live on television. The first
images to arrive from the Ares Vallis area were small grayscale pictures
and, on television at least, the resolution was rather low. The very first
broadcast images appeared on a computer screen, inside a small window which
floated among many other windows on the desktop. What was on the air seemed
to indicate that a cameraman pointed his camera to the computer monitor,
eagerly awaiting and immediately retransmitting the first picture as it
appeared on NASA's computer screen. The CNN announcer was ecstatic and,
contrary to journalism protocol, clearly expressed her own excitement with
what she was seeing for the first time herself.

While perhaps unimpressive in the eyes of the visually literate public,
accustomed to flashy digital special effects on television and in the movies,
these stills are profoundly significant, overcoming real space (119 million
miles from Earth) with near real-time contiguousness. Their meaning does
not arise from cinematic entertaining, but from the raised awareness of
the Universe we have gained by being collectively telepresent on the Martian
surface. These pictures were not representations of science fiction scenarios,
but a de facto window into another world entirely. The feeling of remote
presence was intense. "We're there!", shouted NASA mission control personnel.

As with the Moon landing before, what is most remarkable about the
Pathfinder mission is not the technological tour de force, but the fact
that millions of people watched simultaneously the first images as they
were broadcast (and soon uploaded to NASA's Web site). It took about 10
minutes for each encoded image to arrive. It took the NASA team about
30 minutes to process the data stream into color images. As the first color
images were unveiled, again, live on CNN, approximately one hour after
arrival, I was struck with the realization that what I was seeing at that
very moment, in the privacy of my home, was exactly what the surface of the
fourth rock near the Sun looked like one hour ago!

Twenty one years ago, Viking gave us our first glimpses of the Red Planet.
Today, through this near real-time experience, Pathfinder gave us a sense
of being telepresent on Mars. While it took the spacecraft seven months to
travel to Mars, the near-instantaneity -- given the relative distance
between the planets -- of the telecommand, remote response, and
image-retrieval, touched us with a renewed sense of proximity beyond
the material limits of physical space.

This is the first time ever that a fully mobile and wireless telerobot
(the rover Sojourn) is sent to explore another planet, a true landmark
for telepresence and the history of the space program. The pictures of
the landing site taken by Pathfinder will be used to determine the
exploratory path of the rover Sojourn, which is 2 feet by 1.5 feet wide
and 1 foot tall. Once deployed, the rover will navigate the environment
and negotiate the terrain on its own, at a speed of two feet a minute.

A unique kind of human-machine interaction takes place in this mission.
The cognitive process of a human being is remotely projected on a distant
robot, which in turn has autonomy to sense the surroundings and make

decisions that are in its best interest (for example, to prevent an
accidental fall from a cliff).
While the aesthetic dimension of this experience will go unnoticed by
most directly involved in the project and telespectators alike, it is
precisely this aspect of the media event I witnessed today that I find
particularly significant. Some of the aesthetic features unique to this
telepresence event are the relativity of space and time (seven months to
get there, ten minutes to transmit a picture); the nature of the
human-machine interface (combination of teleoperation and autonomy);
remote space negotiation and navigation (unpredictability of the terrain,
feeling of remote presence); teleoperation (at-a-distance control of a
robot); capture, transmission, reception, processing and unveiling of the
images; the instantness of the pictures; the realization of all this live
on television (integration between the one-to-one experience of remote
control with the public space of television); and the impact of this
telepresence event on the collective consciousness.
All this, I suggest, has paramount aesthetic value -- aesthetic, not artistic.
The investigation of the artistic dimension of telepresence, however,
is a fascinating challenge that must be met. It is clear that the aesthetic
dimension of this historic event introduces telepresence to the population
at large, pointing to a future when personal telepresence will be an integral
part of our daily lives. As our presence on the Red Planet increases via
telerobots, and eventually with humans, one can easily foresee Webcams
enabling us to look at the Martian surface on the Internet with the same
ease and regularity as today we see the skyline of several North-American
cities.
Other forms of personal telepresence will be developed in the future in
many segments of society. For example, through a telerobotic hand surgery
might be performed remotely, or a document located in one city could have
the original signature of an individual in another miles away. Artists
working today can directly respond to an event of this magnitude by working
with the very same means employed in the fantastic exploration of outer
space: telepresence, remote operation and networking. No object can rival
the experiential quality of today's event.
The very first images broadcast live on CNN were hard to discern or
recognize as a landscape. In science as in art, what you can't recognize,
you cognize. Awareness of the unfamiliar remote terrain, coupled with
intermittent visual feedback, guided and will continue to guide the
telexploration of the dry flood channel where the spacecraft landed. As
Pathfinder deploys the small rover Sojourn on the inviting crimson terrain,
it will be searching the Martian surface (and below) for signs of life,
intelligent or not, present or past. I need no further evidence, however,
because today I saw, telepresentially, clear signs of intelligent life on
the surface of Mars: ours.

_____

NOTE:
Starting September 1997, I'll be joining the Art and Technology faculty of
The School of the Art Institute of Chicago. My new address will be (from
August on):
Eduardo Kac
Assistant Professor of Art and Technology
Art and Technology Department
The School of the Art Institute of Chicago
112 S. Michigan Avenue, 4th floor
Chicago IL 60603
Phone: (312) 345-3567
Fax: (312) 345-3565
Email: ekac@artic.edu
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< Electronic Garden/NatuRealization: An Interactive Sound Installation >
Miroslaw Rogala

Miroslaw Rogala
1524 South Peoria
Chicago, IL 60608 USA
Phone: (312) 243-2952
Fax: (312) 243-6522
Email: rogala@aol.com
http://www.mcs.net/~rogala/

Imagine a garden in which you feel the presence of the community around you, where you run into shadows of the past and hear whispers of your neighbors, past and present -- an "Electronic Garden" in which your presence and movement define your experience. In the center of Washington Square Park in Chicago, USA, I created a piece Electronic Garden/NatuRealization which brings together multiple voices using infrared sensors and computer chips in an interactive sound installation.

Known as "Bughouse Square," this park has been officially designated as a free speech area and historically functioned as a place for public debate, including such luminary figures as Clarence Darrow, Emma Goldman, and Eugene Debs. Highlighting this history, I excerpted some of these historic speeches and intersperses them with contemporary speeches by political personalities, neighborhood voices, as well as popular personalities Studs Terkel and Ken Nordine.

The viewer/listener creates the soundscape. Electronic Garden/NatuRealization is an interactive sound installation using passive infrared sensors and proprietary voice-storage technology orchestrated by a microprocessor to create four sensitive zones. As a visitor or multiple participants move through the zones, his or her body movement triggers different speeches from four independently-powered amplifiers, running to the surrounding speakers. The infrared sensors measure and average the surrounding temperature. In response to a radical change in temperature, such as the presence of a person in the sensitized area, the sensors close, sending a signal to the microprocessor which then starts the program. A speech then is heard from the speakers surrounding that zone. If there is no human present, the installation is silent.

Movement through the open structure triggers up to four pre-recorded speeches simultaneously, creating a "debate" that spans time and space with the rotating archive of two or three dozen one-minute speeches. The individual, through participation, must negotiate and attempt to balance collective and sometimes opposing voices in Electronic Garden/NatuRealization.

"I call this work a 'garden' because I'm taking history and making it grow in the new soil of cyberspace," says Rogala, a visiting artist at Columbia College Chicago.

"With technology and multimedia as the tools, I'm moving the Bughouse Square legend into the future by enabling people to establish a new awareness and relationship with voices from the past."

eGarden <http://www.mcs.net/~rogala/egarden/> is the online extension of the Electronic Garden/NatuRealization sound installation. The eGarden web site provides an additional opportunity for the global community to explore the Electronic Garden and to contribute their voices and speeches. The installation is experiential - brief sounds that mix with the traffic and the space to bring gestures of ideas, impressions. As a site on the World Wide Web, eGarden provides a more reflective environment, in which biographies, historical background, and texts are included, creating a different experience for the viewer in the private space of the web as compared to the site-specific, outdoor sound installation.

The interactive sound was installed in Washington Square Park in Chicago for six months: from June to November, 1996. The installation may possible be moved to new locations around the world, with new historical contexts

that will be incorporated into the work. The website will remain on line, documenting the growth and changes that occur.

This public art project has been commissioned by Sculpture Chicago "Re-Inventing the Garden City" 1995-1996 program. It was created in cooperation with the Chicago Park District and in collaboration with the many friends and neighbors of Washington Square and Seward Parks.

ARTIST BIOGRAPHY

Miroslaw Rogala has received international recognition as a video and multimedia artist. A native of Poland, born in 1954, he began his artistic studies in painting and music. An early (interactive) work entitled "Pulso-Funktory", 1975 was a sculpture with programmed pulsating neon light and keyboard electroacoustic sound. He studied music at Panstwowa Srednia Szkola Muzyczna (PSSM) in Krakow and painting at the Academy of Fine Arts (Krakow) receiving an MFA degree in 1979. Arriving in the USA to study and work with new media, he graduated in 1983, with honors, from the School of the Art Institute of Chicago, receiving an MFA in Video Computer Graphics. He has been accepted as an Interactive Multimedia Arts Doctoral candidate in the online PhD research program at the Centre for Advanced Inquiry in the Interactive Arts (Roy Ascott - Director), Gwent College, University of Wales.

He served as Associate Professor from 1991 to 1993 at Rensselaer Polytechnic Institute in Troy, N.Y. and participated in the design of a new Master's Degree program in Integrated Electronic Media at the (iEAR) studio.

Mr. Rogala's video and multimedia installation work has received international recognition. He is a recipient of the 1995 Internationaler Videokunstpreis International Award for Video Art (in collaboration with Carolee Schneemann). He was awarded a 1994-1995 Artist in Residency Fellowship at the ZKM/Zentrum Fur Kunst und Medientechnologie Karlsruhe (The Center for Art and Media in Karlsruhe, Germany). He received a 1994-1995 grant from the Goethe-Institute Chicago to create and produce the interactive, virtual reality multimedia work, "LOVERS LEAP", in collaboration with German artists and architects.

He has been awarded five NEA/AFI Regional Fellowships (1993 for "INSTRUCTIONS PER SECOND"), (1990 and 1989 for a two channel video/multimedia installation "CLAIM YOUR POWER") and (1985 and 1984 for the seven channel video performance work "REMOTE FACES: OUTERPRETATION"). He was awarded an National Endowment for the Arts (NEA) InterArts Media Fellowship in 1992 for "INSTRUCTIONS PER SECOND", a multimedia video installation with live performance. He was awarded a Beer Trust Fellowship in 1991. He has also received funding awards from the City of Chicago Department of Cultural Affairs (1990) and the Illinois Arts Council (1986, 1988). His videotape "MACBETH: THE WITCHES SCENES" was selected and presented as a New Works Premiere at the 1989 Los Angeles American Film Institute Video Festival.

In addition to his media work, Miroslaw Rogala continues to exhibit his mixed media works: paintings, drawings, prints, and photography. His current works include a series of mixed media work including large-scale chalk drawings combined with animated graphics and video displayed on LCD screens (built into the frames of the drawings) to create single mixed-media works. Other current series include digital photography, screenprints and monoprints derived from computer paintings, and laser photographs (color landscapes, nudes, and portraits enhanced by time-exposed "light drawing" with lasers and other pure projected light sources). His recent exhibitions include Virtual Photography/PHSCologrms (in collaboration with Artn Laboratory) which are featured in the Photography After Photography Siemens AG Kultur Programm 1995-1997 Traveling Exhibit in Europe. A mixed media drawing, "Trees Are Leaving #2" (1993) with videotape loop displayed on LCD monitors has been acquired for the permanent collection of the Museum of Contemporary Art in Chicago and will be included in a retrospective exhibition, Art In Chicago 1945-1995.

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< Journal Review: Artificial Intelligence News -
"In commemoration of R. Zaripov" >
Special Issue of _Artificial Intelligence News_ magazine
Moscow: Artificial Intelligence Association,
1995, 95 pp.
Reviewed by I. Vanechkina
E-mail: pgr@sfsu.edu

Russia has presented Leon Theremin (L.S. Termen), pioneer of electronic art,
to the whole world. Another prominent representative of Russia, who made an
international contribution to the field of electronic art, or to be more
precise, to computer-aided musical composition, is Rudolf Zaripov. Born in
Kazan, Zaripov moved to Moscow to continue his studies, and there he carried
out research and experiments in "artificial intelligence and art" till his
last days. Russian audiences have been acquainted with his numerous articles
and monographs since the 1950s and 1960s. Many of his works, however, have
also been published abroad.

Readers of Leonardo may be acquainted with his short biography published
in this journal in 1994 [1]). This commemorative edition of _Artificial
Intelligence News_ is the first large publication devoted entirely to
Zaripov and accessible to a broad audience, owing to its simple style. The
first section of the issue consists of excerpts from Zaripov's works. The main
part of the issue is devoted to reminiscences written by his colleagues in the
field of cybernetics and by musicologists from Moscow, St. Petersburg, Kazan
(M. Gaaze-Rappoport, V. Shevalev, V. Petrov, I. Romanov, A. Manenkov, et al.).
We learn not only details of his biography and his achievements but also about
the misunderstanding of his work by art theorists who thought, for some
reason, that he proposed substituting the machine for the artist. Alas, one
can determine from Zaripov's explanation in an article published in 1973 that
his aims were different:

"The main aim of such experiments is not to substitute the machine
for the composer. We use machine-aided composition of music primarily to
corroborate our hypotheses about musical laws. From this point of view,
computer-aided simulation or composition of music is the new objective
musicological method, machine music being something like useful "waste
products". The "products" are the criteria by which we can measure the quality
of our program, the soundness of our ideas about the mechanism of creating
melodies, the internal links between different elements of music and, finally,
the laws composers follow unconsciously, intuitively in their creative work."
One can get an even clearer idea of his position from Zaripov's more recent
notes (1983):

"I speak and write about the simulation of creativity in terms of
the simulation of art, simulation being a method for revealing secrets of
creative work, not a method for creating something. The result of the
simulation is not the end in itself. We use it as a criterion, as an

estimation of the level of knowledge about an object."
Several papers by Kazan researchers (S. Bruno, B. Galeyev, et al.) are
published at the end of the issue. Contemporary researchers in his own country
are trying to develop Zaripov's ideas, using new methods and new technical
aids.
Reference

1. M. Zalivadny, "In Memoriam: Rudolf Zaripov," Leonardo, 27, No.
5, 373--375 (1994).

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< Book Review: Visual Explanations >
Visual Explanations:
Images and Quantities, Evidence and Narrative
Edward R. Tufte.
Graphics Press,
Box 430, Cheshire, CT 06410,
1997.
158 pp., $45.00. ISBN: 0 961 3921 26.
Reviewed by Wilfred Niels Arnold
E-mail: WARNOLD@KUMC.EDU

Pick up any issue of the journal "Science" and take a moment to
evaluate their typical, composite graph. After struggling to locate
the A, B, C, and D's of the component pictures with those buried in
the ponderous figure legend, trying to match the shapes (circles,
squares, triangles; filled or open) of the data points with the
conditions they represent (also in the legend), and hoping that the
acronyms and abbreviations will make sense if you manage to find them
in the main text; let's concede that we are conditioned to put up with
a lot of poorly presented information. If you are still in doubt, try
submitting your own simple graphs with explicit labels on the curves,
and be prepared for the editorial staff to amalgamate the items into
confounding sets, and to abstract the curve identifiers into the
deadly legends. Another journal, "Cell", elects to publish in fonts
with no serifs and also denies the well-founded custom of using
italics for Linnaean genus and species. Perhaps the culprits believe
that this 'modern and crisp' style helps reader-comprehension. In
fact, controlled studies reveal the opposite. All of this is the
more remarkable because editors are supposed to be engaged in an
activity that espouses clarity and logical explanation. I wish they
would read Tufte.

     Visual Explanations is the third in a series written and published
by Edward Tufte, a professor at Yale University. The first, _The
Visual Display of Quantitative Data_, 1983, was both instructive and
entertaining. I missed _Envisioning Information_, 1990, but want to
read it as soon as I can.

     The present volume is beautifully produced. Several examples, both
old and current, are displayed first as originals and then after
improvement by Tufte and his associates. The results are entirely
convincing. Even an icon such as Dr. John Snow's statistical graphic
on the cholera epidemic in London, 1854, is analyzed without
trepidation. The author dives into the data around the Broad Street
pump (source of infected water) and shows how various displays will
more or less support the proper interpretation of the mode of
communication of cholera. On the other hand, the change in incidence
of disease after the climactic removal of the pump-handle has been
overly interpreted by other commentators, in terms of cause and
effect. Tufte succinctly and intelligently takes the reader through
the logical possibilities and coincidences, without denying that the
correct and constructive conclusion was reached by Dr. Snow.

     "There are right ways and wrong ways to show data; there are
displays that reveal the truth and displays that do not." Edward
Tufte puts a fine point on this maxim by comparing the nineteenth
century presentation of the cholera epidemic with the data displays
behind the disastrous explosion of the January 28, 1986, Challenger

Space Shuttle. The latter was attributed to the failure of two
O-rings at low temperature and the good Professor shows us how the
now obvious indications of potential problems hid under unproductive
data summations. The serious need for good visual and statistical
thinking could hardly be exemplified more forcibly.
        One of the seven chapters is devoted to disinformation design,
wherein the ingenious mechanisms of magic are used to show how
information is intentionally hidden, and thus reveal, by contrast,
the principles that should be avoided when the object is to
communicate the truth. The final chapters are on "Multiples in Space
and Time" and "Visual Confections". The latter refers to "assemblies
of many visual events", some of which are charming as well as
instructive. Others are delightful, not least of which a
reproduction of Mark Tansey's painting, "Myth of Depth", 1984, wherein
five contemporaries of Jackson Pollock display their own various and
revealing aspects of body language as they contemplate the artist's
apparent ability to walk on water. This book has many messages and
is full of constructive suggestions. I recommend it highly.
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< Seminar Review: Presenting Data & Information >
"Presenting Data & Information"
Edward Tufte
Seminar: July 14 & 15, 1997
Grand Hyatt Hotel Union Square
San Francisco CA 94108
Reviewed by Kasey Rios Asberry
E-mail: kasberry@humanorigins.org
Inverse-magician, Yale professor and information design revolutionary, Edward
Tufte brought a clear message to San Francisco this week. He spoke to two
overflowing houses of webmasters, multimedia developers, software programmers,
entrepreneurs, advertisers and communicators of every stripe. Behind me were
two staff members of the City Health Department, on either side were a trade
show graphic artist and a webmaster for a large commercial sports site. He
took no questions. He talked for nearly five hours. Almost no one left early.
Why were people so interested?
In his three self-published books, _The Visual Display of Quantitative
Information_, 1983, _Envisioning Information_, 1990, and the most recent _Visual
Explanations_, 1997, Tufte combined solid, fascinating research with compelling
presentation: from paper to plate to accuracy of caption 'heaven is in the
details'. I find each of these books continue to provide new insights.
But we weren't there just for the books; most people I talked to already had at
least some of them. What would cause a room full of info-hacks to skip out on
tight production schedules for a whole day to attend a presenter's presentation
with nary a single transparency?
Something a cross between hunger for truth and a deep desire to understand what
works, I believe. It turns out that according to Tufte, satisfying the one
assures the other.
Throughout his talk he emphasized that the integrity of the data must be
protected above all else. How can this be done? Clarity in transmission of
ideas can be accomplished by matching the cognitive task with the
dimensionality of the display. If the cognitive task is to make a comparison
between one data set and another, then the differences between the sets
should be elevated in the presentation, not by falsifying or exaggerating the
data but by reducing the noise in the system of presentation.
This is an extremely useful principal, as were hints about integrating word
and graphic, and eliminating unnecessary legends which cause the viewer to take
extra steps in decoding information.
Tufte's five hours were full of concrete aids to presenting information in the
most convincing manner possible. Information designs which enforce comparison,
reveal process and dynamics, integrate word and picture and adhere to the
highest quality of content are successful; it's clear.
To accomplish this high standard requires full concentration and most of a
person's time. But let's face it, one can burn up an awful lot of a lifetime
on poor design also. After following Edward Tufte's analysis of Minnaert's map

of Napoleon's march, the Space Shuttle disaster faxes and the redesign of
medical communications, I felt inspired and newly-equipped to take on
information design as a matter of life and death. Thanks, Edward Tufte, for
self-exemplifying!
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< Book Review: The Ingenious Mind of Nature >
The Ingenious Mind of Nature
Deciphering the Patterns of Man, Society, and The Universe
by George M. Hall
Plenum, New York, 1997
425pp, 63 illus, Cloth, $29.95
ISBN 0-306-45571-4
Reviewed By Cliff Pickover
E-mail: cliff@watson.ibm.com

    Dr. George Hall became interested in the shapes and forms of
nature as a young boy studying biology in high school. His favorite
biology class was organized by phyla to emphasize the evolution of
various organs and physiological processes. It became apparent to him
that by the time we reach the humble earthworm, all of the human
organs and processes, except the skeleton (and liver), have been
developed, at least in rudimentary form. Evolution from that point
forward was an improvement on these mechanics rather than a radical
departure from them. He did not understand why, but the question
lodged itself in his mind and would not let loose.
    In this book, Hall wonders about very old questions: are the laws
of nature fundamentally continuous and orderly, with occasional lapses
into disorder? Or are these laws fundamentally discontinuous and
chaotic, from which nature evokes order on occasion by virtue of
patterns that lead to such order? How does nature spin the complex
world around us? One of Hall's goals is to show how concepts central
to chaos theory, thermodynamics, and systems theory find solid
expression in everyday life. From these central ideas, Hall explains
how systems behave: abstract systems, physical systems and
sociological systems. Hall argues that the complex patterns around us
are connected and share the same origins in the fundamental structure
of matter. Throughout the book, Hall discusses a variety of topics
including mathematics, fuzzy logic, chaos theory, history, psychology
and economics.
    Hall believes that the mind of nature is not only ingenious but
parsimonious. His philosophy is summed up by his statement: "Nature
starts with a configuration of elements in space, sets them in motion,
then sits back and waits patiently for billions of years until the
program inherent in the original configuration develops into the
organism know as the earth... The development of organisms, and all
natural physical systems, arises from patterns efficaciously
programmed to reach out into their environment and take what they need
to grow -- computer science practiced on biological forms."
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< Book Review: Islamic Arts >

Islamic Arts
by Jonathan Bloom and Sheila Blair.
Phaidon Press,
London, U.K.,
1997. 447 pp., illus. Paper, $22.95.
ISBN: 0-7148-3176X.
Reviewed by Roger F. Malina.
E-mail: <leo@mitpress.mit.edu>
"Islamic Arts" presents a comprehensive review of the Islamic
arts from the time of the foundation of Islam to the present. The
historical record is divided into "The Rise of Islam 600-900 A.D.",
"Regional Centers and Local Powers 900-1500 A.D.", and "The Great
Empires 1500-1800 A.D." Artforms include architecture, manuscripts,

books and paintings, carpets and pottery. As stated by the Western
authors, "The idea of Islamic Art . . . is a distinctly modern
notion generated not by Islamic Culture but by outsiders." Indeed,
as they point out, "The Alhambra and the Taj Mahal are two examples
of Islamic art, but it is unlikely that the builders of one ever
thought that the other had much, if anything, to do with it." The
book seeks to provide an even-handed coverage over a long time
period and many different artforms. It is addressed to readers
seeking an initial introduction to the topic. For a Leonardo
audience, the inevitable question is what is happening at the
interface between Islamic culture and world culture. The only hint
given in this book is in the area of architecture; the main
examples cited are unfortunately those of Le Corbusier, Louis Kahn
and Zlatko Ugljen---outsiders invited to build in Islamic
countries.
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< Digital Review Notes >
Leonardo Digital Reviews is a 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, CD-ROM,
CDI, on-line, diskette, WWW, etc.).
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. 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, 425 Market Street, San Francisco CA 94107, USA. Event
and exhibit organizers, 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
Individuals interested in being added to the Leonardo Digital
Reviews review panel should email (only) their curriculum vitae
to:
leo@mitpress.mit.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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< End Leonardo Digital Reviews JULY 1997 >
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                       | OPPORTUNITIES |
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< Dartmouth College - Research Assistantship >
Larry Polansky
Bregman Electro-Acoustic Music Studio
Dartmouth College
Hanover, NH 03755
Email: larry.polansky@dartmouth.edu

URL:
    http://music.dartmouth.edu
One Year Graduate Research Assistantship Available, Dartmouth College Graduate
Program in Electro-Acoustic Music, Bregman Electro-Acoustic Music Studio.
For graduate or post-graduate student (at least a B.A, but any level will be
considered) with strong abilities in computer music, mathematics, and excellent
writing skills, to work on a series of educational modules in mathematics and
music and computer music. Some teaching possibilities as well, depending on
level of experience. Send c.v and introductory email or letter to the address listed
above.
****
< The University of Virginia - Center for Computer Music >
For additional information please contact:
Judith Shatin
Email: shatin@virginia.edu
Alicyn Warren
Email: alicyn@virginia.edu
for the computer music portion;
Rich Israel
Email: israel@virginia.edu
for the A&S portion.
Job Description:
Programmer Analyst - Micro (Job Category Code: J05CC)
Job Vacancy Announcement Number: 72129
Salary Range: $30,572 - $47,730
40% Programming:
      Initiate projects in music software development in consultation
with computer music faculty. Research and specify system requirements and
create applications in Microsoft Access, C/C++, Objective C, LISP, Perl or
others as appropriate to user needs. Document and maintain programs and
orient users in their operation. Must be able to obtain specifications
from users and document them appropriately.
30% User Support / Studio Management / System Administration:
    Maintain computer music studios in good working order,
including UNIX and Macintosh system administration, troubleshooting
digital and analog audio and MIDI systems. Work with faculty in planning
for long-range development of the facility, including software and hardware
purchases and installation. Act as the primary hardware and software
installation and troubleshooting resource for departmental computer users.
Will troubleshoot problems on a variety of platforms and make site visits as
needed.
10% Server Administration / Music Departmental Computer Support:
    Provide general computer support as needed to department faculty, staff
and students. Perform full administration of UNIX network. Provide assistance
to Arts & Sciences computer support in Novell NetWare server
administration. Act as backup server administrator in the absence of the
Network Administrator. Install client and server hardware and software
as required. Maintain inventory of equipment and logs of user configuration
and server configuration for reconstruction of server, if necessary.
10% Training:
    Work with students and faculty on training in a variety of
computer music applications. Supervise student assistants in routine
maintenance and setup for computer music events.
Provide training for users in use of core applications such as
e-mail, net browser, word processor, and spreadsheet applications.
10% Professional Development:
    Stay informed of current developments in music software and
equipment, signal processing research, etc. Attend classes and workshops in
required computer languages and hardware and software support topics.
Participate actively in ITC's Local Support Partner program. Coordinate
activities with Arts & Sciences Computer Support by regular contact with
Director.
A VIRGINIA STATE APPLICATION FORM IS REQUIRED. Please specify state job
title, Programmer Analyst - Micro, J05CC, as well as the Job Vacancy

Announcement # 72129 when applying.
TO OBTAIN APPLICATION FORMS:
These should be filled out and submitted promptly; please call:
Department of Human Resources
University of Virginia
(804) 924-4598
See also:
gopher://minerva.acc.Virginia.EDU:70/11/admin/human/Employment
/OpenStaffJobs/comp_jvas and see Job # C2491,
Programmer Analyst Microcomputer
The University for Virginia is an Equal Opportunity, Affirmative Action
employer.
IN ADDITION TO APPLICATION:
Applicants are strongly encouraged to submit with application materials a
letter (hard copy), describing computer music interests and expertise.
The University of Virginia announces an opening that will consist of 50%
assignment in the Music Department and 50% working for Arts & Sciences. The
music portion of the position consists primarily of working as technical
director for the Virginia Center for Computer Music, including UNIX system
administration, and also will have a music departmental computer support
component. The work in Arts & Sciences will involve programming, user
support, and Novell server administration.
Expected starting date: September 1, 1997
Application deadline: open until filled, but apply now. We expect to reach
a decision before the end of July.
General Information:
The University of Virginia is a top-ranked public research university,
located in beautiful Charlottesville, VA, in the foothills of the Blue
Ridge Mountains. Washington DC is about 2 hours away by car. The Department
of Music offers a Master of Arts degree in Music, with concentrations
in Composition, History and Criticism, and Ethnomusicology.
The School of Engineering and Applied Science (SEAS) offers Masters and
PhDs in Computer Science and also in Electrical Engineering.
The Virginia Center for Computer Music, founded in 1988 by Professor
Judith Shatin, is the region's most advanced facility of its kind.
Current VCCM equipment includes a network of 4 NeXT machines plus a
Pentium, 3 Macintosh Quadra MIDI workstations each with Digidesign digital
audio, and a group of 5 PowerMac 6100 MIDI workstations. Software packages
in use here include (among many others) Digital Performer, MAX, ProTools,
Unisyn, Finale, HACK (developed at UVA), Cmix, rt, and CSound.
For more information about VCCM, visit our website at:
http://www.virginia.edu/~music/VaCenterCompMusic.html
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< Institut fuer Neue Medien - Stipendia for Media Art/Media Theory >
Gabriele Gramelsberger
INM - Institut fuer Neue Medien
Daimlerstra¤e 32 - D-60314
Frankfurt/Main
Tel: ++49 69 941 963-10
Fax: ++49 69 941963-22
e-mail:gabriele@inm.de
http://www.inm.de/
The Institut fuer Neue Medien is granting Stipendia for Media Art/Media Theory
starting 1.11.1997. The INM is granting half-year "Vireality" stipendia.
Interested parties can apply with complete project proposals until 15.9.1997.
Requirements are a college degree and experience in dealing with new media.
The stipendia recipients will receive DM 1.250- a month as well as the use
of the technical facilities at the Institute that their work requires (video,
audio, computer and web studios).
Final projects will be published and/or exhibited by the Institute.
Theoretical work can also be done externally. The projects are tied into
the research program of the INM.
"Vireality" - The Intertwining of Reality and Virtual Worlds
Is it still so easy to make such a clear distinction between reality and

virtual worlds? Or don't different states of our perceptions intertwine with one another? What is real, what is virtual? The borders between the two worlds are becoming increasingly blurred in our information society. "Vireality" - a new term as well as a new concept - shall make the defining of an experience category possible, that up until now only could be experienced, not articulated. The tasks that present themselves are concentrated in the research of "vireal" objects, states and experiences - in the artistic, theoretical and scientific sense. Philosophically expressed it is the research of the "somethingness" of vireal objects, states and experiences. What will be researched is if and how self-intertwined states portray real and virtual beings. Therefore not a dualistic approach, rather the intertwining of reality and virtual worlds will be accepted as axiomatic. Vireal examples are easy to find: the idea of "things that think" in the application field, of vireal information management, of computer simulations with vireality, of cyberspace as a vireal-experience space, or even of the human as a vireal being, i.e. as Avatar.
Vireality: Art, Theory, Science - INM Research Program 1997-1998
+ Stipendia: "Media Art" and "Media Theory:" Half-year stipendia, starting November 1997, on the subject of "Vireal Objects."
+ Open Internet project on the subject of INM-Server for New Media, http://www.inm.de/
+ Being planned: Guest lecture "Virtuality, Fiction and Vireality" during the winter semester of 1997/98 at the INM - Institut fuer Neue Medien - Art, Architecture and Philosophy Exhibit '98
The stipendia are made possible by the Siemens Kultur Programm
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< One Year Teaching Position at Brown University-USA >
Professor Gerald Shapiro
Chair, Search Committee
Department of Music
Brown University
Box 1924
Providence, RI 02912 USA
BROWN UNIVERSITY DEPARTMENT OF MUSIC
The Department of Music at Brown University announces a position at the level of visiting assistant professor. The term of this appointment, which begins in September 1997, will be for one year. The contract is not renewable. We seek a composer with a strong specialization in computer music capable of teaching with distinction and enhancing the intellectual life of the department. The responsibilities for this position include teaching two courses each semester, directing undergraduate independent studies projects, and taking an active role in the administration of the MacColl Studio for Electronic Music. Applicants must have completed an advanced degree (M.A., M.F.N., Ph.D., or D.M.A.) in composition and demonstrate successful teaching experience at the university level. Deadline for receipt of applications and all supporting materials is August 15, 1997. Applicants should send a letter describing their experience and interests together with a curriculum vitae, samples of compositions, graduate school transcripts, and three letters of recommendation to: Brown offers the B.A. in music, the M.A. in music (with concentrations in composition and ethnomusicology), and the Ph.D. in music (with a concentration in ethnomusicology). The Department of Music, with a faculty of eleven supported by professional library and technical staff as well as some twenty instructors in applied music, enrolls about a dozen graduate students, thirty undergraduate majors, and more than a thousand general students annually. It supports an Appalachian string band, Balinese gamelan angklung, chamber music groups, chorus, Ghanaian drumming group, jazz bands, orchestra, Trinidadian steel band, wind symphony, and a resident string quartet. Its technical resources include the MacColl Studio for Electronic Music and a University Multimedia Lab. The Orwig Music Library houses the Koetting Ethnomusicology Archive and the Neiman Archive of Sound Recordings. Among the Special Collections of the John Hay Library are the Harris Collection of American Poetry and Plays, which

includes over 17,000 musical works from the 17th century to the present, and a collection of more than 500,000 pieces of sheet music.
Brown University is an Affirmative Action/Equal Employment Opportunity employer.
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< Staccato Systems - USA >
Email: staccato@StaccatoSys.com
Staccato Systems Inc, is a spinout from Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) and the Stanford Office of Technology Licensing (OTL) Sondius trademark development program. Staccato Systems Inc is a developer of next generation audio synthesis tools based on physical modeling technology. Staccato Systems is actively seeking talented and motivated individuals to fill the following positions.

Director of Business Development
================================

You will be responsible for developing all aspects of Staccato's Market and Sales development including creating the marketing plan, the pricing model, strategic alliances, our developer program, product introduction, and managing marcom information flow.
  * 5-10 years of experience in the Computer/Multimedia/Music
    business.
  * Experience in the computer industry or computer based music
    industry.
  * Previous experience in engineering focused marketing and business
    development.
  * Direct experience in developing a Marketing and Sales
    plan/program.
  * Knowledge of Music software and tools such as MIDI, Synthesizers,
    etc. etc.

Windows System Software Engineer
================================

You will work on system programming support in our real-time audio synthesis engine.
  * Windows 95 programming (32-bit app/driver), familiarity with the
    APIs.
  * Intel Assembler (Essential), MMX is a plus.
  * Experience with Direct Sound and WDM.
  * Experience writing Audio drivers.
  * Experience with VxDs and DLLs.

Sound Synthesis Voicing Engineer
================================
This is a unique opportunity to work with some of the pioneers in the area of Waveguide and Physical Modeling synthesis algorithms. You will work with a team of engineers/musicians to develop, calibrate, and polish sound synthesis algorithms of all kinds.
  * Background in engineering, physics, or music (or a solid computer
    music background);
  * Familiarity with voicing synthesis algorithms.
  * Familiarity with traditional sound synthesis methods: additive
    synthesis, FM, wavetable, others.
  * Familiarity with physical modeling synthesis methods:
    Karplus-Strong, Waveguide, modal synthesis.
  * Familiarity with the basic psychoacoustical issues surrounding the
    perception of sound.
  * Intuitive/technical understanding of digital filters and their
    calibration.

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      * Experience with Matlab and/or C programming.
      * Ability to hear what is wrong with a sound synthesis algorithm and
        fix it.

   DSP engineer
   ============

   You will work on porting and optimization of our real-time audio
   synthesis engine and signal processing algorithms on a wide variety
   of platforms.
      * Experience in the application of DSP theory in the programming of
        DSPs for audio synthesis and processing.
      * Direct familiarity with several of the following chip instruction
        sets: Pentium, MMX, K6, PowerPC, ADI SHARC, Motorola 56k, Philips
        TriMedia, TI.
      * An interest in audio/music and some background in psychoacoustics.
      * Comfortable working under Windows, Mac, UNIX and NeXTSTEP.
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                       |   ANNOUNCEMENTS  |
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< Artists and Children >
Molly Hankwitz, Editor
Studio Mhh
2940 16th Street #203
San Francisco CA 94103
Send manuscripts with illustrations by the DEADLINE of August 15, 1997.
CALL FOR PAPERS for an emerging anthology on the subject of
ART + CHILDREN
Previously unpublished papers must be approximately 10-15,000 words.
10-15 pages double spaced and ready for publication (send one copy only +
floppy copy) clearly marked with the author/artist' s name, address,
contact numbers and illustrated heavily with original or documentary
photographs or emerging from photo/media based work with children or about
childhood or using some aspect of children in the art...
Artists working with children on specific interesting projects,
artists exploring childhood memories, dreams, imagination, or other
artists working with developmentally disabled or autistic children as a
source of inspiration, artists working with children to produce fictions
regarding childhood and culture, and artists using art in therapy with
children are encouraged to send papers.
This publication will be produced in the form of an extensive anthology.
Publication dates are as of yet undetermined until materials are sent in
and reviewed.
Please include a SASE for return of manuscripts and photos.
Please send samples of your photographic materials incl. clips from video
or film stills.
****
< ISEA Meeting at SIGGRAPH 97 >
Joelle Rabion
ISEA97* Conference Coordinator
School of the Art Institute of Chicago
Department of Art & Technology
112 S. Michigan Avenue, 4th Floor
Chicago, IL 60603
312/345-3571 phone
312/541-8078 fax
email: isea97@artic.edu
URL: http://www.artic.edu/~isea97
ISEA (the Inter-Society for the Electronic Arts)
will hold an informal informational meeting at SIGGRAPH '97.
Thursday August 7
12 noon to 1:30pm

International Center
LA Convention Center
We will answer questions about ISEA97, ISEA98, ISAST,
and any other topics of interest to the international community.
The Eighth International Symposium of Electronic Arts being held at
The School of the Art Institute of Chicago, September 22 -27, 1997
****
< New Contemporary Music Radio Program in Argentina >
FRONTERAS DEL SILENCIO
c/o Alejandro Iglesias-Rossi
14 de Julio 1212
RA-1427 Buenos Aires
ARGENTINA
The Argentinean composer Alejandro Iglesias-Rossi is curating a new radio
program called "Fronteras del Silencio" (Borders of Silence), which is
broadcast once a week at the radio of the city of Buenos Aires
(Argentina).
All kind of contemporary music related to spirituality is welcome (the
subtitle of the radio program is "spirituality and contemporary music").
Send DATs, CDs or high quality cassette recordings.
Alejandro Iglesias-Rossi is one of the most salient composers in the young
generations in Argentina. His electroacoustic piece "Angelus" won the
first prize in the International Rostrum of Electroacoustic Music in 1996.
He was member of the jury of the 1992 World Music Days organized by the
ISCM. He has been very skillful in producing electroacoustic music
combining Asian instruments with live electronics.
****
< Call for Papers - NSF Sonification Workshop at ICAD >
Gregory Kramer
Clarity/Santa Fe Institute
310 NW Brynwood Lane
Portland, OR 97229
Tel: 503-292-8550
Email: kramer@listen.com
http://www.santafe.edu/~icad
This is a call for position papers for an NSF-sponsored workshop on
sonification to be held in Palo Alto, California, Sunday, November 2,
1997, the day before ICAD '97.
At the request of the National Science Foundation, the International
Community for Auditory Display, conveners of the International Conference
on Auditory Display, is organizing a one day workshop on sonification.
The purpose of the workshop is to assess the status of the field and produce
recommendations to the NSF regarding the development of a research
agenda. For the purposes of this workshop, sonification is defined as
auditory representation of data.
Sonification research includes aspects of human perception and cognition,
sound synthesis and audio signal processing, and music and sound design,
as well as a host of related disciplines and applications such as computer
science, process control and assistive technologies for the disabled.
Relatively little research has been conducted in auditory representation
of data and, with a few real time exceptions such as Geiger counters or
pulse oxymeters, no sonification solutions have been widely used.
What are the key issues facing sonification researchers?
Are there bottlenecks in tool design? In perception research? Are there
needs for design guidelines and theory building? What kinds of applications
are likely to be the most successful? What kinds of research teams might
be assembled to make the needed research or development breakthroughs?
What role might sonification play in education? Conversely, what kind of
background is needed to participate meaningfully in the field? In what
ways can this research be informed by data visualization, haptic, VR
and other perceptualization research? How significant is interactivity
in data exploration via sonification?
These and other questions are likely to arise. The workshop will be
limited to 15-20 participants. We will work ahead of time via email

to ascertain the questions most pressing in the field. When we convene
on November 2 we will hear several talks by participants then further
focus our questions, breaking into working groups to investigate them
in depth.
The whole group will reconvene at the end of the day to share and
discuss our results. Initial results will be presented a couple of days
later at the ICAD conference. Following the workshop each team will
return home to write up a portion of a report which will be compiled,
edited, and presented to the National Science Foundation along with
policy recommendations regarding the development of a research agenda.
The white paper will also be circulated throughout the relevant
research communities.
It is hoped that this effort will stimulate new thought and shed some
light on the difficulties and possibilities of this research area. It
may also help researchers at the fringes of sonification to provide
meaningful input, while defining some of the potential benefits and
difficulties of sonification for new research efforts. It is also our
hope that a scientifically responsible position paper will serve as a useful
reference as researchers approach funding agencies, colleagues,
managers and review committees about their work.
Please submit a position paper of 500 words. This paper should present
what you consider to be the key issue(s) facing sonification research,
why these concerns are important, and possibly your current thoughts as
to how to approach the issues. Please include within the paper a brief
bio and description of current sonification research or current research
of relevance to sonification. In selecting participants consideration will
be given to experience, disciplinary and institutional diversity, demonstrated
consideration of relevant issues, the ability to present quality
scientific work, and other criteria. Participation by young researchers
is also encouraged. A range of participants with varying experience and
backgrounds will support informative discussions as well as provide
opportunities to influence new researchers in this field. Email your
submission (no attachments, please) to Gregory Kramer, workshop Chair,
at kramer@listen.com no later than September 2,1997.
This workshop is an adjunct to the International Conference on Auditory
Display, ICAD '97, to be held at Xerox PARC November 3-5, 1997 in Palo
Alto, California. Another workshop will be held on the same day entitled
"Audio on the WWW". That workshop will be sponsored by the Office of Naval
Research. Elizabeth Mynatt is the General Chair of ICAD '97, James Ballas
is the Technical Chair. For further information on this and other ICAD
activities, please visit the ICAD Web site at http://www.santafe.edu/~icad
****
< PR - Virtualitas Fine Arts Online >
Ernest Lergon
Ute Breslawsky
VIRTUALITAS
Luetzenstrasse 10
D-10711 Berlin, Germany
Tel: +49 - (0)30 - 89 09 56 61
Fax: +49 - (0)30 - 89 09 56 62
Email: Ernest@virtualitas.com
http://www.virtualitas.com/

                    ANTONIO HENRIQUE AMARAL
Exhibition: August 5th until September 14th, 1997
Vernissage: August 5th, 14:00 - 16:00 (Sao Paulo time - BRAZIL)
                        17:00 - 19:00 (London time   - GMT   )
                        19:00 - 21:00 (Berlin time   - GERMANY)
            The artist is present!
   Address: http://www.virtualitas.com/finearts/
The exhibition presents recent work as shown at the same time at
MASP - Museu de Arte de Sao Paulo - and provides in addition a
survey of the complete oeuvre of Antonio Henrique Amaral.
This exhibition will be the first one at VIRTUALITAS - and maybe on the

Internet - which was appointed and prepared ONLY by electronic means
of and will be executed ONLY in the virtual space of - THE NET.
Current exhibition: Emmett Williams - CONFLUX/REFLUX
                         yet until August 3rd, 1997
Please visit the former exhibitions of the artists of the gallery
Kade Schacht, Thomas Kapielski, Raffael Rheinsberg, Georg Harbaum
at the archive: http://www.virtualitas.com/finearts/archive
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< (Crack the) Binary Code >
Kevin Murray
Email: kmurray@mira.net
Tel: +613 9417-7466
Fax: +613 9417-1605
Email: ccp@mira.net
http://www.cinemedia.com.au/sfo/ccp.html
(Crack the) Binary Code is a symposium of multimedia criticism as part of
Interact Multimedia Festival 97 Melbourne Exhibition Centre, Nov 1-2 1997.
Has the digital revolution come up with the artistic goods? 'Binary Code'
invites critics from a range of disciplines (literature, visual art, craft
and film) to appraise the cultural worth of multimedia. Does the small
screen supersede, complement or undermine other art forms? Can we
generalize critical concepts from literature, art and film to the digital
arts? Is there a 'multimedia sublime', or is there only 'cool'? Is
'technological correctness' inimical to good art?
This event is organized by the Centre of Contemporary Photography,
in conjunction with the Interact Multimedia Expo:
    http://www.interact-events.com.au.
For programming details, contact the _Binary Code_ coordinator,
Kevin Murray.
****
< MIT Press Editor Douglas Sery to meet interested book authors at ISEA >
Douglas Sery
Editor - Computer Science
The MIT Press
Five Cambridge Center
Cambridge, MA 02142-1493
Tel: (617) 253-5187
Fax: (617) 258-6779
Email: dsery@mit.edu
URL: http://mitpress.mit.edu
Douglas Sery, Acquisitions Editor for The MIT Press, will be
attending the ISEA conference in Chicago Sept. 23-26 and will be
available to meet interested authors at the MIT Press/Leonardo
booth. MIT Press publishes the Leonardo Book Series, covering
topics in art/science/technology of interest to the Leonardo
professional community. MIT Press also publishes books of
interest in computer science, artificial life, architecture, and
design.
Authors interested in meeting with Douglas Sery during ISEA may
either come to the MIT-Press/Leonardo booth at ISEA or contact
him ahead of time to set up an appointment at dsery@mit.edu.
For further information on the Leonardo Book Series, including
instructions for book proposals, please see
http://mitpress.mit.edu/Leonardo.
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        http://mitpress.mit.edu/e-journals/LEA/

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 Minneapolis, MN 55414-1318
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