```
    /   _____
   /   /      /\
  /   /--   /__\
 /_____/___ /    \
```

```
                     _____
                    |              |
                    |  CONTENTS    |
                    |_____|
```

_____

INTRODUCTION

EDITORIAL

< Art and Design: Cures for Society's Growing Data Perceptual
Blindness?, by Julio Bermudez >

FEATURES

< Toward the Glass Bead Game - A Rhetorical Invention, by
Joshua Fost >

< PNN: Digital Sampling To Create A Hybrid Media Feed, by Jack
Stenner >

< Project Description: ERA (Escuela Rual Andina de Cajamarca) -
Activating the Talents of Rural Peru's Artisans, by Sabine Vess >

LEONARDO REVIEWS

< Reading Psycho-Analysis: Freud, Rank, Ferenczi, Groddeck,
reviewed by Coral Houtman >

< The Matrix of Visual Culture: Working with Deleuze in Film
Theory, reviewed by David Surman >

LEONARDO ABSTRACTS SERVICE

< Multiuser Environments as (Virtual) Spaces to (Hybrid) Spaces
as Multiuser Environments - Nomadic Technology Devices and
Hybrid Communication Places, by Adriana de Souza e Silva >

ANNOUNCEMENTS

< Leonardo/ISAST office moving >

ISAST NEWS

< In Memorium: Iba Ndiaye Diadji >

< In Memorium: Piotr Kowalski >

< Preliminary Announcement: International Art and Technology
History Conference >

< Leonardo/ISAST Participation with College Art Association >

< Leonardo Network Member Profiles: Julio Bermúdez and
Penelope Finnie >

_____

```
         _____
        |                   |
        |   INTRODUCTION    |
        |_____|
```

_____

In LEA's May issue, multimedia artist Jack Stenner describes
the *Public News Network* (PNN), a computer-based artwork giving
viewers "the power to interrogate corporate broadcast media."
Using a 3-D navigable space, with Internet-transmitted objects
representing news broadcasts, to synthesize ideas from multiple
disciplines the work encourages the audience to question our
preconceived understanding, providing the "opportunity for a new
understanding via chance juxtapositions and a re-sampling of
existing content."

Scientist Joshua Fost's Internet-art piece *Toward the Glass
Bead Game*, is a realization of writer Herman Hesse's "Glass
Bead Game". The piece associates small images with ideas that
are described in ordinary prose, thus developing a new
vocabulary of glyphs, which are later "assembled in special
ways, such that their spatial arrangement asserts symbolic
relationships between the corresponding ideas." Incorporated
into the work are elements from Quentin Tarantino's film *Pulp
Fiction*, Francis Ford Coppola's film *Bram Stoker's Dracula*,
and symbolism representing the biblical Christ.

Sabine Vess describes, "Escuela Rural Andina de Cajamarca,"
which seeks to activate the talents of rural Peru's artisans
through the creation of permanent training facilities for
weavers, ceramists and jewelers.

In Leonardo Reviews, filmmaker/theorist Coral Houtman reviews
Peter L. Rudnytsky's *Reading Psycho-Analysis: Freud, Rank,
Ferenczi, Groddeck*, examining the relationship between
psychoanalysis and literature through a textual analysis filter.
David Surman reviews Patricia Pisters' latest powerful foray
into the writing of Deleuze, *The Matrix of Visual Culture:
Working with Deleuze in Film Theory*

_____

```
     _____
    |                |
    |    EDITORIAL    |
    |_____|
```

_____

ART AND DESIGN: CURES FOR SOCIETY'S GROWING DATA PERCEPTUAL
BLINDNESS?

By Julio Bermudez, Leonardo International Advisory Board
College of Architecture and Planning,
375 South 1530 East,
Room 235, University of Utah,
Salt Lake City, UT 84112, U.S.A.
bermudez@arch.utah.edu

Until the early twentieth century, scientific and engineering
decision-making depended on direct human observation of
empirical phenomena. Although instruments extending the range
of human perception and action had been developed and were used,
a firsthand human involvement in the observation, collection and
classification of information was unavoidable. During the past
century the development of technology, hand in hand with the new
needs of scientific inquiry, made our instruments so powerful
and sophisticated that they now largely mediate our relationship
with reality. Paradoxically, these very instruments have now
evolved to such an extent that they themselves have become too
complex, large, small, far away and/or fast to allow for
unassisted human operation - we need instruments to run our
other instruments! As a result, today's ordinary scientific and
engineering work requires a near total removal of direct human
engagement from reality, lest it lead to imprecise, inefficient,
biased, or even dangerous outcomes - think of genetic research,
astronomy, quantum physics, medical probing, nuclear power plant
management, etc. Doing science and engineering means to work
through layers and layers of representations displaying ever
growing amounts of data, which are gathered by sensors measuring
essential functions of the system in use and/or under scrutiny.

As I write, millions of engineers and scientists across the
planet are conducting millions and millions of operations that
depend on accessing, analyzing and generating terabits of data
by means of highly removed and abstract representation
instruments. Of course, this situation is not unique to
scientists or engineers. Just consider that the actions of
millions of individuals in the developed world are continuously
being converted into data, sent and stored in servers to be
accessed through various information instruments in order to be
stored, studied and used in business transactions, security
checks, military operations, health care decisions, air travel
planning, etc. Given that the production of data and technology
is accelerating so rapidly that it has began to outpace our
capacity to manage them, our total dependency on instruments and
data representations is more than worrisome [1]. The stakes get
quite high when the monitored system/behaviors involve high risk
and decisions must be taken in real time. Growing rates of human
errors in decision-making point to yet another and, perhaps,
even more troublesome fact: existing data instruments displaying
received sensor information often obscure, rather than
facilitate, understanding [2].

So, here is one big problem facing contemporary civilization:

our systems, technologies and activities have developed to a much larger extent than the representational instruments necessary to make sense out of what our apparati are sensing or doing [3]. It is as if our society's "body" is able to experience sensations but its brain is unable to fully process them to allow for optimal situation awareness of its state, behavior and surroundings. In other words, the existing rules of perception (i.e. those integrating sense-data into meaningful observations) are showing signs of obsolescence and calling for fundamental improvement.

The explosive growth of data visualization in the past 20 years is a tacit acknowledgment of this diagnosis. However, the new information display models advanced so far have only partially alleviated the growing data perceptual blindness afflicting society. The reason is simple: most of the work in this area has been done by those who develop the data or devise the instruments themselves: scientists and engineers. Scientists and engineers have been trained in quantitative and not qualitative methods, in analytical and not integrative processes, in obtaining or using and not in communicating knowledge. Clearly, the field of data visualization needs the help of professionals familiar with representation, design and communication. Bringing this missing expertise into data-monitoring instruments would go a long way to address the information overload weakening contemporary society's ability to properly process sense data into perceptions that support optimal functioning.

Art and design have an especially important role to play in lending perceptual power to the unclear and overwhelming sensorial output coming out of our instruments. Returning precise sight to otherwise blurred vision means to conceive new representational conventions and tools that transform raw data into meaningful information. Doing so is something that comes naturally to art and design. The act of turning automatic sensation into conscious perception has been one of the great contributions of art and design throughout history.

This by no means suggests a solitary effort. Undertaking this project requires addressing many intertwined and difficult issues and dimensions. Not only must one have some cognitive model of the users' data-driven decision-making processes, but one must also determine the nature and behavior of the data (structure, process), the type of problem, needs and requirements, the technology to deliver such depictions, evaluation systems, etc. Clearly, this cannot be done by any one domain alone. In fact, this task would overwhelm any single discipline by its sheer complexity, scale, multi-dimensionality, etc. Nothing less than a well-organized interdisciplinary approach will do.

And yet, as disciplines of qualitative, interpretive, creative, intuitive, critical and multimodal inquiry dependent on depiction and communication, art and design offer unmatched, millennia old expertise in the weakest areas of present-day data discernment systems. By playing a leadership role in restoring society's perceptual ability to process data collected by its ever more ubiquitous and powerful instruments, art and design would become society's prime cognitive faculty in making sense out of information chaos. This project is full of intellectual and practical opportunities for artists and designers and while its full impact is hard to grasp, it is safe to forecast that it will have vast, deep and lasting consequences in our lives.

NOTES

1. See P. Bradford, *Information Architects* (Zurich: Graphics Press International, 1996); P. Drucker, *The Age of Discontinuity* (New Brunswick, Canada: Transation Publishers, 1992); N. Negroponte, *Being Digital* (New York, NY: Alfred A. Knopf, 1995); A. Toffler, *PowerShift: Knowledge, Wealth and Violence at the End of the 21st Century* (New York, NY: Bantam Books, 1990); R.S. Wurman, *Information Anxiety* (New York, NY: Doubleday, 1989); and R.S. Wurman, *Information Anxiety2* (Indianapolis, IN: Que, 2001).

2. See J. Reason, *Human Error* (Cambridge, U.K.: Cambridge University Press, 1990) and E.R. Tufte, *Visual Explanations* (Cheshire, CT: Graphics Press, 1997).

3. See P1000, "Science and Technology Information Visualization: 1996," in *A Roadmap to Provide Information Visualization Technology Broadly within the Intelligence Community*, Version 2 (16 September, 1996); Richards et al, Method and Apparatus for Processing and Displaying Multivariate Time Series Data, US PATENT # 5,121,469 (9 June, 1992); E.R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, CT: Graphics Press, 1983); Tufte, *Envisioning Information* (Cheshire, CT: Graphics Press, 1990); and R.S. Wurman, *Information Architects* (Switzerland: Graphis, 1996).

Ed. Note: See Julio Bermudez's profile in this issue's ISAST News.

_____

```
     _____
    |                                   |
    |            FEATURES               |
    |_____|
```

_____

PNN: DIGITAL SAMPLING TO CREATE A HYBRID MEDIA FEED

By Jack Stenner
Texas A&M Visualization Laboratory,
College Station,
TX 77801 United States of America

jack@jigglingwhisker.com
http://www.jigglingwhisker.com

[Ed. Note: This article, including images, can be seen in full at http://lea.mit.edu]

ABSTRACT

Public News Network (*PNN*), a computer-based artwork, gives the viewer the power to interrogate corporate broadcast media. It presents a 3D navigable space, defined by Internet-transmitted objects representing news broadcasts. It synthesizes ideas from multiple disciplines to create a work that

encourages us to question our preconceived understanding and allows us to reconfigure its representation. This process provides the opportunity for a new understanding via chance juxtapositions and a re-sampling of existing content.

INTRODUCTION

The *Public News Network* (*PNN*) is a computer application and development framework that synthesizes methodologies from the worlds of art theory, computer science, cognitive science and copyright law into a work of art. The discussion of this work should be prefaced with the acknowledgement that my background is that of an artist and architect, rather than a scientist or engineer. As such, the focus of this work is not the invention of new types, but rather the amalgamation and synthesis of ideas from various disciplines and cultures and the representation of those ideas in forms that provide a reconfigured understanding of meaning. The goal of *PNN* is to create a work that provides the viewer a measure of control and power over corporate media and presents the opportunity for the revelation of alternative meanings. While it may appear at times as a "tool," by virtue of its functional capabilities, ultimately it is intended as a work of art. In this sense, ambiguity is a virtue that allows the viewer to encounter chance associations and derive alternate readings.

Perhaps the best way to describe *PNN* textually is to attempt to paint a picture of the interface and experience that is the goal of this project.

DESCRIPTION

PNN presents a three-dimensional space that a viewer can navigate using a computer mouse and keyboard. Moving within the environment, one sees irregularly shaped, three-dimensional objects resting on an infinite ground plane and hears an ethereal wind [Fig. 1]. As the viewer nears an object, the sound transforms into the sound of television static and text is displayed, identifying this object as representative of an episode of the evening news. The viewer "touches" the episode object and a transcript of the broadcast begins to scroll across the screen. With further interaction, video of the broadcast streams across the surfaces of the environment, distorted by the shapes upon which it flows [Fig. 2]. The viewer can further manipulate and repurpose the broadcast by searching for words contained within the transcripts. The results of this search are reassembled into a new episode object, which is surface-mapped with video containing the terms stripped from their original context. Juxtapositions of sound and imagery present the opportunity for the creation of an aesthetic experience through willful manipulation of meaning effects.

CONCEPT

The initial goal of the project was to create a prototype application that identified ways that an application might work with artistic concepts such as sampling, representation/simulation, dynamism and culture-at-large, to produce a computer-mediated aesthetic experience.

Prior to working with exclusively digital media, my work revolved around the presentation of ideas and experiences that question existing control structures, and I wanted to continue

this mode of work. Within the United States, one of the most powerful and effective control structures of the last several decades has been the major broadcast television network, such as CBS, ABC and NBC. In particular, the evening news broadcasts have been fundamental in shaping opinion and reflecting U.S. cultural ideals. Since the days of Walter Cronkite, the *CBS Evening News* has been the most respected and most watched evening news broadcast. For this reason, I chose it as the initial focus of *PNN*.

Even though the Internet is increasingly a source of news and information for many in the U.S., the televised news broadcast is still the major source that creates and reflects our cultural dialogue. These broadcasts are generally unidirectional, with the viewer being the passive receptor of information. Might there be a way to involve the viewer with meaning generation? While the broadcasters claim to present information in an unbiased manner, there are always masked meanings and hidden subtexts within the presentation. How might an artist reveal these? Similarly, these presentations are neatly packaged in 30-minute segments, with little coherence between episodes other than the structure of the broadcast itself. Might different time bases uncover alternative readings, or might there be individuated forms associated with these broadcasts? What about digital rights - how might one deal with issues regarding appropriated material?

The opportunities afforded by the mass communication of the Internet and the increasing bandwidth available to those in the U.S. led me to investigate the possibility of creating an alternative broadcast network. This network would be focused on the existing corporate networks and would use them as a source of material. I felt this might be a useful way to involve the project with the cultural dialogue and perhaps provide the opportunity to act as "counter-surveillance" on the existing mechanism. Rather than simply being an alternative network based on existing models, this network would be in the form of an artwork that uses the tools of art to address and, perhaps, subvert the tools of corporate media.

TECHNIQUES

During the development of *PNN*, I identified a number of techniques to address the questions posed in the previous section. By its very nature, the Internet provides the capacity to involve the viewer in the process of meaning generation. Studies tell us that meanings garnered from news broadcasts often have less to do with the facts presented and more with the associations we read into them [1]. Of course, there is the question of effort, but assuming an interested and critical-minded viewer, *PNN* attempts to provide the viewer the ability to mine information about the news broadcast by creating an interface that allows the viewer to enter search terms that are subsequently matched against a database of transcripts of each broadcast. Once a term is matched, it returns the surrounding phrase containing the term, along with an index, into the segment of video containing the search word. Each term "hit" is sequenced behind the previous to create a remix. The playback of this re-sampled data creates unusual juxtapositions and the opportunity for chance meaning effects. *PNN* creates a Recombinant Information Space [2] that collects, repurposes and synthesizes information. This technique allows the viewer to direct and shape her own search for meaning within the broadcast, rather than continuing the passive-viewer style of

the existing system.

Another technique "re-presents" patterns that exist within the news broadcasts. These patterns may provide a glimpse into hidden subtext and representations of meaning embedded within the broadcasts, or perhaps in culture in general. Using techniques common to information retrieval, search terms and their relative locations, frequency and importance within the body of the transcripts are mapped to a visualization across time. This mapping is overlaid with the representation of the broadcasts to provide a linear understanding of the progression of meaning embodied in the broadcasts.

While *PNN* is not a "real time" application, in the sense that it works with a live broadcast feed, it is dynamic by virtue of the fact that the database of information is updated shortly following each broadcast. This ever-growing source of information allows the application, as well as the experience it engenders, to grow and change with the culture that informs it. Unlike the typical news broadcast that is presented once and disappears, *PNN* allows the viewer the ability to visualize and interact with news using a greater duration time base. Presently, the database contains over 120 episodes. In order to keep the visualization manageable, the count will be capped at 365, with the newest episodes replacing the oldest. There will possibly be added some functionality to extend this timeline or to provide access to it in certain situations.

Another question posed during the development of *PNN* deals with the issue of form: might an analysis of the video of each day's broadcast be used to generate a unique formal representation? *PNN* works with the idea of space as a media type by creating a network-transmittable architectural space defined by the objects within it [3]. Each 3D episode object is generated following a broadcast. Hue, saturation and brightness, sampled periodically throughout the duration of the episode, are used to construct geometry that reflects the idiosyncratic nature of the day's news. It is hoped that over time, one will be able to recognize the "tenor" of a broadcast simply by its visual representation.

Of course, with any work that appropriates material from existing sources, digital rights become an issue. No one would use *PNN* as an alternative broadcast of the evening news and expect to receive the same pre-packaged experience delivered by the major networks. *PNN* functions as a critique of the existing source of our daily information and encourages the viewer to construct a commentary on its substance. *PNN* acts as a tool for the manipulation of a major component of U.S. cultural dialogue. Recognizing that there are varying opinions about this issue, *PNN* places the burden of responsibility on the viewer rather than the artist/programmer. A "preference" panel within the application contains a sliding control that allows the viewer to adjust the distortion of sound and imagery to suit her opinions regarding digital rights. The more unrecognizable the source of material, the less likely it is that one might accidentally violate the digital rights of the reference.

TECHNOLOGY

Five nights per week, a custom-written application called "Captionator" records a 30-minute episode of *The CBS Evening News with Dan Rather* to a serially controlled digital video

recorder. Simultaneously, Captionator controls a closed caption decoder to record the transcript of the spoken word [Fig. 3]. Captionator keys the transcript to the time code of the video broadcast to provide rough synchronization of word to video. Following the recording, Captionator creates a searchable index, utilizing the Lucene API [4] and stores it on the *PNN* web server. Captionator then initiates the digitization of the recorded video and stores it on the *PNN* streaming server. Based on factors such as luminance, hue, saturation or other data, a subprogram analyzes the video and creates a three-dimensional representation of the broadcast. This broadcast object is combined with other episode objects to create a "landscape." These broadcast objects are stored on the *PNN* web server, ready to be downloaded by the *PNN* client application. Whenever the *PNN* client is run, it asks to check with the *PNN* server and update to include the most recently recorded broadcasts. Within the client space, audio is spatialized - as the viewer moves throughout the space, sound is tied to each episode object, panning with movement.

PNN utilizes cross-platform APIs where possible. The primary user interface relies on Java [5], combined with GL4Java (OpenGL for Java) [6] for three-dimensional rendering. QuickTime for Java [7] provides access to native video and video-streaming capabilities. As previously mentioned, Lucene provides search capabilities combined with Apache XML-RPC [8] for Internet connectivity and communication. Recently, a new implementation of the OpenGL and Java bindings called JOGL [9] has been made available. This library appears to offer advantages over GL4Java. The client application will soon be converted to this new binding and should result in noticeable speed and stability improvements.

STATUS

A prototype *PNN* client application has been created and runs on Windows and Mac OSX. The prototype provides an overall look at the capabilities of the system, simulating the functionality of the server-side components. The server application is in the early development stage as a part of my research at the Texas A&M Visualization Laboratory. The plan is to produce the components of the *PNN* framework as individual works that develop an area of functionality that will be adapted to *PNN*. Recently, one of these *PNN* subprojects, called *Re-present*, was completed [Fig. 4]. *Re-present* develops the transcript search and retrieval mechanism and presents a prototype visualization of the content. *Re-present* can be downloaded and run as an independent application on Linux, Mac OSX and Windows systems.

Further information about *Re-present* can be found at http://www.publicnewsnetwork.net/projects/re-present/ The *PNN* client prototype, as well as development information, screenshots, and video is accessible at http://www.publicnewsnetwork.net/

The next major area of development, following conversion of the client application to JOGL, is the generation of geometry from video analysis of the news broadcasts. This work is scheduled to begin in late fall, 2004.

EXTENSIONS

PNN establishes a framework for the basis of multiple works,

targeted at specific issues beyond just the *CBS Evening News*.
Given the same evaluation criteria, how might the visual
representation of *Fox News* differ from PBS (ideologically
polar opposites)? Does a sitcom appear appreciably different
than the news? Patterns of language might be made apparent and
studies of term frequency and color-mood relationships could
lead to new forms of expression. Perhaps it would be interesting
to interface *PNN* with a rapid prototyping system to produce
physical episode objects. How might *PNN* be integrated into an
installation environment? *PNN* provides a rich foundation for
the exploration of multiple ideas of interest to artists and
scientists.

CONCLUSION

PNN uses computer technology in the form of an application
that takes advantage of digital systems' abilities to manipulate
information quickly and efficiently. *PNN* creates an immersive
navigable space and presents that space in an interpretive
manner. This space is optimized to encourage an aesthetic
experience on behalf of the viewer and connects the viewer to an
intrinsic part of our cultural identity, allowing the viewer to
re-contextualize the information. *PNN* uses principles of
digital sampling to enable the viewer to take control of media
and presents the opportunity for an alternative understanding
of content.

REFERENCES

1. See Karen A. Cerulo, "The Rest of the Story: Sociocultural
Patterns of Story Elaboration," in *Poetics*, Vol. 28, No. 1,
(2000) 21-45.

2. See Andruid Kerne, "A Recombinant Information Space," paper
presented at the Computational Semiotics in Games and New Media
(CoSIGN) 2003.

3. See Lev Manovich, "Navigable Space," in *The Language of New
Media* (Cambridge, MA: MIT Press, 2001) 251-252.

4. Jakarta Lucene Version 1.3, Apache Software Foundation,
Forest Hill, Maryland, 1999.
http://jakarta.apache.org/lucene/docs/index.html

5. Java, Sun Microsystems, Inc., Santa Clara, CA, 1995.
http://java.sun.com/

6. GL4Java (OpenGL for Java), Jausoft, Open Source under LGPL,
1999
http://www.jausoft.com/gl4java/

7. QuickTime for Java, Apple Computer, Inc., Cupertino, CA
http://www.apple.com/quicktime/

8. Apache XML-RPC Version 1.2b1, Apache Software Foundation,
Forest Hill, MD, 2001
http://ws.apache.org/xmlrpc/

9. JOGL, Open Source under BSD, 2003
http://jogl.dev.java.net/

BIOGRAPHY

Jack Stenner is a multimedia artist, architect and PhD student at the Texas A&M University Visualization Laboratory. He has worked as an artist since 1991, winning numerous awards and showing his work at Siggraph, Fotofest, Contemporary Arts Museum Houston, Austin Museum of Art, Alternative Museum, etc. He is founder of Purse Building Studios alternative exhibition space and studios in Houston, Texas. Currently his work focuses on the stimulation of aesthetic experience via provocative digital visualization. His work attempts to call into question our preconceptions of the world around us, utilizing digital video and interactive devices as well as custom and off-the-shelf software.

_____

TOWARD THE GLASS BEAD GAME - A RHETORICAL INVENTION

By Joshua Fost
Boston, MA, U.S.A.
josh@joshuafost.com

[Ed. Note: Following are the Abstract and Artist's Statement for "Toward the Glass Bead Game," an interactive project by Joshua Fost. The actual project as it is meant to be seen can be accessed on the LEA web site at http://mitpress2.mit.edu/e-journals/LEA/GALLERY/glassbeadgame

The Artist's Statement will also be published in *Leonardo*, Vol. 37, No. 3 (June 2004).]

ABSTRACT

This project presents a realization of writer Herman Hesse's "Glass Bead Game." By associating small images ("beads" and "tiles") with ideas described in ordinary prose, the project develops a new vocabulary of glyphs; these glyphs are later assembled in special ways, such that their spatial arrangement asserts symbolic relationships between the corresponding ideas. In particular, arrangements take the form bead-tile-bead, signifying subject-predicate-object assertions. Arranging and connecting multiple bead phrases on a two-dimensional grid allows large groups of related assertions to be made in a compact and appealing visual space, and the communication of rich symbolic connectivity less lengthy and cumbersome than it would be with prose. The entire structure, including narrative, bead phrases and imagery, is represented in the technical forms of the "Semantic Web;" all beads and tiles are labeled with URIs (Uniform Resource Identifiers) and bead phrases become reified RDF (Resource Description Framework).

ARTIST'S STATEMENT

The 1946 Nobel Prize for literature was awarded to Herman Hesse, author of the 1943 novel *Das Glasperlenspeil*, or *The Glass Bead Game*. In that work, Hesse describes the Game as "a mode of playing with the total contents and values of our culture; it plays with them as, say, in the great age of the

arts a painter might have played with the colors on his palette [1]." He constructs a futurescape in which players of the Game are something like today's musicians, historians and mathematicians, all rolled into one. Institutions - indeed, entire provinces - are devoted to nothing but the study of the Game.

Unfortunately, Hesse was not sufficiently explicit to provide unambiguous instructions for how to go about actually creating or playing the Game. This has vexed many. It is possible that Hesse himself did not have a clear vision of the Game, but instead a more or less aesthetic and intellectual hope that something more than narrative language should be possible. I am attempting to realize Hesse's vision by experimenting with a fusion of language, art and technology and trying to be more explicit in laying out how such a Glass Bead Game might actually be played.

My approach has three and a half parts. The first part is simply a narrative essay on some subject. As an example, I use the symbolism I see in Quentin Tarantino's 1994 film *Pulp Fiction*.

The second part is an association of small images ("beads" and "tiles") with sections of the narrative text. One bead might represent a character, for example, or an event, or a theme. Anything one can describe in the narrative can become a bead. In my example, beads are round images with one or two letters on them. For example, the bead labeled "ms" refers to the milkshake shared by the characters Vincent and Mia; the bead labeled "Ch" refers to the biblical Christ; and "vm" refers to the vampire from Francis Ford Coppola's filmic interpretation of Bram Stoker's novel, *Dracula*.

The tiles, in turn, represent relationships between ideas/beads, as when I wish to show how an idea from *Pulp Fiction* is symbolic of an idea from another work. For example, the shared relationship between the beads for Christ, the vampire and the milkshake is the tile "blood," denoted (somewhat arbitrarily) by a Chinese hanzi character for that word. The choice of logographic symbols rather than alphabetic letters was motivated by the need to keep the tile images small, but still capable of denoting a sometimes complicated idea.

The references of each bead and tile would have been previously associated with their corresponding references in an associated narrative, or could also have been drawn from a pool of familiar and well-established symbols.

The third part is the assembly of all the beads and tiles into a single structure arranged on a grid, like a Scrabble™ board. By carefully arranging the beads and tiles in groups of three (bead-tile-bead = subject-predicate-object), I can play with semantics and aesthetics simultaneously, representing large sets of symbolic relationships in a compact visual space.

The "third-and-a-half" part is the underlying language of representation: XML (eXtensible Markup Language). I use several technologies from the Semantic Web [2] to represent the entire work: narrative, beads, tiles and the Glass Bead Game itself. RDF statements, for example, provide a structure for semantically meaningful assertions to be published on (and perhaps processed by) the Web. I use RDF to represent every subject-predicate-object assertion in the Glass Bead Game. When

multiple Glass Bead Game players agree upon a symbolic vocabulary for beads and tiles and simultaneously adopt standards for the universal interchange of semantic information, each becomes able to contribute to an ever-growing crystal of insights and perceptions.

REFERENCES

1. H. Hesse, *The Glass Bead Game (Magister Ludi)*, (New York: Henry Holt and Company, LLC, 1943) p. 15.

2. T. Berners-Lee, J. Hendler and O. Lassila, "The Semantic Web," in *Scientific American* (May, 2001).

MANUSCRIPT RECEIVED 7 JANUARY, 2004

BIOGRAPHY

Joshua W. Fost is a scientist, philosopher and Chief Technology Officer (CTO). His current interests include questions like: Why are good theories beautiful? Why does beauty make us happy? What constraints does language place on thought? How can those constraints be moved? In general, he explores the intersection of science, art and philosophy. In 1999, his theory on the neurobiology of beauty and religion appeared in the review journal *The Neuroscientist*.

He is currently expanding his theory of beauty, developing a seminar in applied philosophy and developing software. He has held several positions in academia and the private sector, including a fellowship at NASA and postdoctoral work at Brandeis University. Most recently, he was Chief Technology Officer of Colliers International, a $1B commercial real estate firm, where he was recognized as the recipient of InfoWorld magazine's "Top 25 CTOs of 2004" award.

He earned his Ph.D. from Princeton University in 1996.

_____

PROJECT DESCRIPTION: ERA (ESCUELA RURAL ANDINA DE CAJAMARCA) - ACTIVATING THE TALENTS OF RURAL PERU'S ARTISANS

Rural Peru's weavers, ceramists and jewelers are primarily farm workers. Their ancient decorative patterns, repeated again and again, have lost vitality, but the artisans doubtlessly possess a specific natural talent. What is perhaps most important is that the artisans experience that they themselves can arrange things in a different way.

Based on our experiences with such artisans, we have begun developing training programs for them, taking into account their specific circumstances. Through this project, we have learned that the moment they become aware of their talent, they long to get it developed. With adequate formation, the great number of regular and part-time artisans - not to mention future generations - could initiate significant structural changes, professionally as well as socially. 23,608 registered workshops, in the classic sense of arts and crafts, give regular employment to an estimated 145,000 artisans all over Peru.

STARTING PERMANENT TRAINING FACILITIES FOR WEAVERS, CERAMISTS
AND JEWELERS

The ERA (Escuela Rural Andina de Cajamarca), a training school
for farm workers in the region of Cajamarca, Peru, intends to
add a department for arts and crafts to their agricultural
program.

A center is planned where:
• artisans are encouraged to develop their creative talent,
freely and in dialogue with the different techniques, fields of
application and market demands
• ideas can be designed by the artists and prototypes developed
making use of modern facilities
• artisans selected from among them can be trained as instructors

The department will furthermore see to creative literary
education in the villages. Most of the artisans there are women
and most of the women older than 30 are practically illiterate.

HISTORY OF THE PROJECT

>From 1999 until 2002, I assisted, as a volunteer, the IPACE of
the SENATI (Institute of Audiovisual Pedagogics in Enterprise
Trainings of the National Service of Industrial Formation) in
Lima, Peru in an initial technical and entrepreneurial training
for Andean weavers. It was my task to investigate the decorative
quality of the weavers' goods and to begin encouraging their
creative talent. I also worked in November 2003 with illiterate
women near Cajamarca.

Working with the weavers and later on with ceramists and
jewellers revealed a remarkable creative power and initiated,
from the very beginning, a change in their attitude towards the
possibilities of their craftsmanship. Plans were developed for a
structural, permanent formation of the artisans, weavers,
ceramists and jewelers of rural Peru, in which activation and
application of their creative talent would play a central role.
Together with Nelson Saavedra Gallo, the IPACE educator at that
time, I started an "e-primary" in the matter and we began
training instructors. This IPACE project ended in 2002, without
a follow-up.

Since 2003, Nelson Saavedra Gallo has been the designated
director of the ERA and he has requested my help for the planned
department of arts and crafts. As long as there are no funds to
get things started, we continue with what is available.

Information about this project can be found at
http://www.sabinevess.nl
The first part of this site gives information about the project,
the second part about my methods and work.

Contact: Sabine Vess
Bruno Schulz Institute, the Netherlands
info@sabinevess.nl

_____

```
 _____
|                                |
|     LEONARDO REVIEWS           |
|         2004.05                |
|_____|
```

_____

Leonardo Reviews has a distinctly revisionist tone this month
as it seems to flag an important twist in the intellectual
climate. This month's postings include a contribution from a new
reviewer, Coral Houtman, a filmmaker and theorist. Her thorough
account of *Reading Psycho-Analysis: Freud, Rank, Ferenczi,
Groddeck*, by Peter L. Rudnytsky, examines the relationship
between psychoanalysis and literature through the filter of
textual analysis. David Surman reviews Patricia Pisters' latest
powerful foray into the writing of Deleuze, while Eugene Thacker
reviews Deleuze's *Francis Bacon: The Logic of Sensation*. In a
lengthy essay, Sean Cubitt helps recover the work of Flusser to
our attention, while Mike Mosher revisits Walter Benjamin in his
review of Gumbrecht and Marrinan's new book. Whether this is
simply a fortuitous coincidence or marks the first inkling of a
new trend in criticism remains to be seen, but we are pleased to
able to offer this digest, along with 15 other reviews from our
panel.

These reviews can be accessed at the usual site:
http://leonardoreviews.mit.edu

Michael Punt
Editor-in-Chief
Leonardo Reviews

_____

Reviews Posted April 2004:

Connected or What it Means to Live in the Network Society,
by Steven Shaviro
Reviewed by Eugene Thacker

Francis Bacon: The Logic of Sensation,
by Gilles Deleuze; translated by Daniel W. Smith
Reviewed by Eugene Thacker

Global Cities: Cinema, Architecture, and Urbanism in a Digital
Age, edited by Linda Krause and Patrice Petro
Reviewed by Mike Mosher

Light-sound Musical Harmony: An Elementary Theory of Audio-Visual
Stimuli, by V.V. Afanasjev
Reviewed by Bulat M. Galeyev

Luce: Optical Theatre of Sergei Zorin
by Yu Linnik
Reviewed by Bulat M. Galeyev

Mapping Benjamin: The Work of Art in the Digital Age
edited by Hans Ulrich Gumbrecht and Michael Marrinan
Reviewed by Mike Mosher

Marguerite: A Reflection of Herself
by Dominique Auvray
Reviewed by Aaris SherinMarch

Masaccio: Saint Andrew and the Pisa Altarpiece
by Eliot W. Rowlands
Reviewed by Amy Ione

The Matrix of Visual Culture: Working with Deleuze in Film
Theory, by Patricia Pisters
Reviewed by David Surman

Oryx and Crake, by Margaret Atwood
Reviewed by George Gessert

Philosophizing Art: Selected Essays, by Arthur C. Danto
Reviewed by Robert Pepperell

Random Order: Robert Rauschenberg and the Neo-Avant Garde
Reviewed by Rob Harle

Paul Rand: Modernist Design
by Franc Nunoo-Quarcoo
Reviewed by Roy R. Behrens

Reading Psycho-Analysis: Freud, Rank, Ferenczi, Groddeck
by Peter L. Rudnytsky
Reviewed by Coral Houtman

Rules of Play: Game Design Fundamentals, by Katie Salen and
Eric Zimmerman
Reviewed by Maia Engeli

The Shape of Things: A Philosophy of Design, by Vilém Flusser,
trans. Anthony Matthews, introduction by Martin Pawley
Reviewed by Sean Cubitt

Towards a Philosophy of Photography, by Vilém Flusser,
trans. Anthony Matthews, intro. Hubertus Von Amelunxen
Reviewed by Sean Cubitt

Writings, by Vilém Flusser, edited and introduced
by Andreas Strshl; translated by Erik Eisel
Reviewed by Sean Cubitt

The Freedom of the Migrant: Objections to Nationalism, by Vilém
Flusser, trans. Kenneth Kronenberg, ed. and intro. Anke K. Finger
Reviewed by Sean Cubitt

A Theory of /Cloud/: Toward a History of Painting,
by Hubert Damisch
Reviewed by Ian Verstegen

_____

READING PSYCHO-ANALYSIS: FREUD, RANK, FERENCZI, GRODDECK

By Peter L. Rudnytsky, Cornell University Press, Ithaca, NY,
2002. 336 pp. Trade, $52.50; paper, $21.95. ISBN: 0-8014-3777-6;
ISBN: 0-8014-8825-7.

Reviewed by Coral Houtman, University of Wales College, Newport

This impressively researched and stimulating book has two rather distinct aims. It is a history of Freud's rebellious sons working in the first part of the twentieth century and a discussion about the disciplinarity of psychoanalysis and its fragile status, poised between a hermeneutic study akin to literary criticism and natural science. Full of fascinating biographical insights, the book is nevertheless much more successful in its second aim as a validation of the continuing use of psychoanalysis, both clinically and theoretically, than its first, where its attempt at what would appear to be the less contentious aspect of the author's thesis - a hermeneutic and historical account of the psychoanalytic literature of Freud's errant disciples - is partial and assertive.

Starting with Freud's own literary criticism in *Gradiva* (1907), Rudnytsky symptomatically reads Freud to suggest that for Freud, literature is the uncanny double of psychoanalysis and vice versa. Freud's treatment of characters from literature and history (Gradiva and Leonardo) as if they were real and his understanding that his case histories, such as Dora and Little Hans, read as literature, as short stories, enables Rudnytsky's own starting point in reading the subsequent psychoanalytic texts through the psychobiographies of their authors.

Thus, when he takes up the subject of *Little Hans* (1909), Freud's analysis of phobia in a five-year old boy, it is to set out his major argument that Freud's own psychobiography caused him to disavow the role of female sexuality in psychic life and to create the misogyny of the Oedipus Complex with its single signifier of sexuality - the male penis. The excessive patriarchal masculinity and patriarchal role play that Rudnytsky ascribes to Freud is responsible for the "anxiety of influence" (cf. Harold Bloom) in Freud's subsequent followers. It emerges as their cruel expulsion from Freud's analytic circle and their various attempts in analytic practice and writing to redress the sexual and Oedipal balance. Thus Rank moves in his later career to supplant the Oedipus Complex with a pre-oedipal psychoanalysis of birth trauma and resites the mother as the critical role in child development. Ferenczi, Freud's vulnerable yet loyal son, is first treated by Freud (he is the unacknowledged subject of *Analysis Terminable and Interminable* (1937)). He is encouraged by Freud, as authoritarian father, to marry a woman he does not love, rather than her daughter, whom he desires. As a result, Ferenczi finds an analytic mother figure in Groddeck, who offers him the sympathy Freud withholds. Ferenczi subsequently forms his own practice and writes against Freud. *Ferenczi's Thalassa: A Theory of Genitality* (1924) predates and influences object-oriented psychoanalysis in its emphasis on the mutuality between analyst and analysed and the containing and maternal role of the therapist. In chapter eight, Rudnytsky provides the first analysis of Groddeck's *The Book of the It* (1923), arguing that it is a far more coherent and scientific account of the unconscious than Freud's drive theories because it corrects Freud's original misogynistic accounts through its own understanding of womb envy. Groddeck also criticizes the theology of Freud's empire and his authoritarian policing of its psychoanalytic borders.

There are several problems with Rudnytsky's narrative here. Perhaps the most crucial is the way that he relies on psychoanalytic auteurism to tie down the meanings of the texts too neatly. He fails to do the psychoanalytic work and look at the overdetermination in the texts and the possibilities of

multiple readings. His disavowal, or at least dismissal, of post-structural literary criticism and psychoanalysis means that he reads the texts and the analysts in schematic, depoliticized, and even hysterical ways. Lacan's key re-reading of Freud with Levi-Strauss revealed not that Freud was a misogynist (whether he was or not is neither here nor there), but that his revelation of the "assymetry of the signifier," (i.e. the notion that culturally, there is only the phallus and no signifier of femininity), is itself a cultural critique and accounts for what might be seen as a transhistorical patriarchy. Thus, far from being the agent of patriarchy, Freudian psychoanalysis can be a tool for its dismantling, a task addressed by a myriad of feminist critics from Julia Kristeva to Laura Mulvey - critics Rudnytsky barely mentions. In fact, his critique is almost exclusively male centered - he dislikes Melanie Klein and does not give Karen Horney a chapter equivalent to his male idols. Indeed, his emphasis on primal father, Freud and the rebellion of his sons, betrays his own Oedipal anxiety of influence. He also fails to understand how the "Third Term" in the Oedipus Complex (i.e. the Name of the Father), is the access to law and acculturation. Without the influence of people other than the mother in the child's life, the child will always be caught in an abject struggle for separation. The neglect of the triad in psychoanalysis is one that reinstates sexism and patriarchy, because it is the hysteria of overvaluing and undervaluing the mother (the saint and the whore) that creates women as hysterical projections of male castration. Thus, Rudnytsky performs the patriarchal discourse he would attempt to correct, and his lack of attention to female psychoanalysts supports this.

It is in the final discursive section of the book that Rudnytsky comes into his own. His careful tracing of the relationship between psychoanalysis, evolutionary science and hermeneutics is masterful. He traces the scientific flaws in Freud's thinking - his reliance on drive theory and his dependence on Lamarckian biology. He then argues that, despite Freud's habit of backing the wrong theoretical horse, neuroscience is finding the claims of psychoanalysis ever more convincing. The discovery that dreaming is not after all tied to REM sleep, but is an effect of the motivational centers of the brain being unhinged from the rational, makes Freud's dream theory ever more plausible. The increasingly postmodern understanding of brain as function (i.e. synapses and brain connections being made and grown through experience) enables a "resilience" (Rudnytsky's term for a unified theory of science and hermeneutics) and an acceptance of many metapsychological insights. Finally, recent clinical understandings of anxiety support Freud's concept of Nachtr?glichkeit (deferred action), a concept that entirely unites the disciplines of hermeneutics and science. For if Nachtr?glichkeit, described by Laplanche as "the enigmatic signifier which is translated and retranslated" is a scientific understanding of how we constantly reinterpret the past in the light of the present, then it also accounts for why we might find truths in the hermeneutic work of translating and retranslating our culture through literature and through psychoanalysis.

———————————————————————————

THE MATRIX OF VISUAL CULTURE: WORKING WITH DELEUZE IN FILM THEORY

by Patricia Pisters, Stanford University Press, Palo Alto, CA, U.S.A., 2003. 303 pp., paper, $24.95. ISBN: 0-8047-4028-3.

Reviewed by David Surman, International Film School of Wales
UWN, Caerleon Campus, Wales, U.K.
david.surman@newport.ac.uk

In *The Matrix of Visual Culture*, Patricia Pisters
pragmatically applies Gilles Deleuze's film philosophy in the
sustained critique of various canonical, commercial and
contemporary films. Translating Deleuze's philosophical
methodologies into digestible terms of engagement is an
admirable achievement in itself, as I recall trying to work with
the dual volumes - *Cinema 1: Movement-Image* and *Cinema 2: The
Time-Image* - being challenging, to say the least.

Pisters' final outcome is admirable. Explanations of the new
Deleuzian terminology are grounded with excellent textual
analysis of a variety of moving-image events. Importantly,
Pisters is not, it seems, a Deleuze apologist - a trait
characterizing many defenders of his film-theory-philosophy.
Avoiding the relativism of attempting to champion all facets of
Deleuze's critical strategy, Pisters makes clear that, for the
time being, certain principles are more fruitful in their
application to known films, whilst other arguments are less
developed. Concepts such as the interconnection of the virtual
and the actual, and the notion of "becoming:" a process and an
attempt to think differently, to see or feel something new in
experience by entering into a zone of proximity with somebody or
something else" (p. 106), are particularly engaging. By
referring to popular films, the accessibility of this new
approach to Deleuze's film scholarship is reiterated. Further,
and more interesting from a disciplinary perspective, is the
positioning of Deleuzian film theory in subtle opposition to
contemporary psychoanalytic theory - which Pisters exemplifies
most notably through the film criticism of Slavoj Zizek.

Consequently (and arguably rightly so) Pisters' Deleuzian
methodology does seem to make considerable moves toward a viable
alternative to psychoanalysis, specifically in the critique of
subjectivity and the cinema. The knowing opposition of post-
structuralist deconstructive approaches with Deleuze's
rhizomatic generative methodology (in crude summary, the study
of networks rather than isolated points) does provide a welcome
respite from the deliberations of certain strands of film
scholarship that lack a developmental perspective.

In that sense, *The Matrix of Visual Culture* enters into the
spectrum of contemporary film scholarship with the same agenda
as Vivian Sobchack's landmark publication *The Address of the
Eye: a Phenomenology of the Film Experience* (1992) as both a
critique of the discipline of film studies and its simultaneous
reinvigoration. Most importantly in my view, Pisters
reconstitutes the apparent ruin of twentieth-century film
studies in such a way that it accommodates a variety of
practices that have largely been excluded. Thus animation -
which Pisters suggests, in her final chapter, is predictive of
the future of cinema - stands alongside live-action film, games
and other aspects of our contemporary visual culture.

Though the limits of space warrant their absence, I felt an
urge to set Pisters' use of Deleuze against other aspects of
film studies, such as the cognitive agenda - perhaps as an
antidote to the trappings of constructing a position in
opposition to the praxis of psychoanalytic theory.

Ironically, it is in the reworking of Deleuze's film theory by other writers that its potential is unlocked - for instance, in the way that Pisters shifts away from the auteur stance of his publications toward a contemporary attitude. Such an emphasis on the historical moment within which Deleuze worked is timely, with the application of his philosophy present at the cutting edge of art, science and technology. For this reason, Deleuze is not the film studies' panacea that some may feel him to be. However, there is little more Deleuzian per se than the reworking of his philosophy for our contemporary cultural climate, so eloquently demonstrated by Pisters. I had suspected prior to reading *The Matrix of Visual Culture* that its subtitle - "Working with Deleuze in Film Theory" - might have been something of a misnomer, conscious of Robert Stam's doubt about actually "working" with Deleuze, and holding similar reservations myself. Thankfully, I have been proven wrong, by a rigorous, progressive and thought-provoking study.

```
     _____
    |                              |
    |     LEONARDO ABSTRACTS       |
    |          SERVICE             |
    |_____|
```

The Leonardo Abstracts Service (LABS) is a listing of Masters and Ph.D. theses in the art/science/technology field, for the benefit of scholars and practitioners.

LEA also maintains a discussion list open only to faculty in the field. Students interested in contributing and faculty wishing to join this list should contact lea@mitpress.mit.edu

_____

AUTHOR
Adriana de Souza e Silva
asilva@cse.ucla.edu

LANGUAGES FAMILIAR TO THE AUTHOR
English, German, French, Spanish, Portuguese.

DISSERTATION TITLE
Multiuser Environments as (Virtual) Spaces to (Hybrid) Spaces as Multiuser Environments - Nomadic Technology Devices and Hybrid Communication Places

ABSTRACT
This dissertation addresses how mobile communication technologies, especially cellular phones, have an active role in creating new types of communication and social networks in a hybrid space formed by the blurring of borders between physical and digital spaces. It analyzes the transference of social places from cyberspace to hybrid spaces. Nomadic technology devices are responsible for producing new social networks in a space that interconnects the physical and the virtual due to their users' perpetual mobility. During the last decade,

multiuser environments in cyberspace have frequently been regarded as utopian spaces in which users could project their imagination. Moreover, digital spaces have been considered as essentially disconnected from physical spaces. Nowadays, the constant connection to virtual spaces, allowed by new mobile communication technologies, transforms our social spaces as well as the projection of our imaginary places in urban spaces. This research is based on theoretical and practical studies. First, I analyze the existing literature on cyberspace and mobile technology devices, emphasizing concepts such as virtual, cyberspace, immersion and hybrid. Practical aspects include analysis of current practices via interviews with artists and scholars and an Internet survey, applied in the United States and in Brazil.

KEYWORDS
hybrid spaces, mobile technologies, cell phones, multiuser environments, media arts, pervasive games.

YEAR PUBLISHED/EXAMINED
2004

URL
http://users.design.ucla.edu/~silvaad

ORIGINAL LANGUAGE OF DISSERTATION:
English / Portuguese

COPYRIGHT OWNERSHIP
Adriana de Souza e Silva

THESIS SUPERVISOR
Paulo Vaz (School of Communications, Federal University of Rio de Janeiro) and Victoria Vesna (Department of Design | Media Arts, University of California, Los Angeles)

INSTITUTION WHERE DEGREE WAS GRANTED
Federal University of Rio de Janeiro, School of Communications (Brazil)

DEGREE:
PhD in Communications and Culture

INSTITUTION URL:
http://www.pos.eco.ufrj.br

INSTITUTION CONTACT DETAILS
Programa de Pós-Graduação em Comunicação e Cultura
Escola de Comunicação, Universidade Federal do Rio de Janeiro
Avenida Pasteur, 250 - fundos
Praia Vermelha - Urca - Rio de Janeiro - RJ
22290-240 - Brazil
Tel: +55(21)3873-5075; Fax: +55(21)2295-9449
poseco@eco.ufrj.br

DISSERTATION AVAILABLE UPON REQUEST

_____

```
 _____
|                                |
|         ANNOUNCEMENTS          |
|_____|
```

_____

LEONARDO/ISAST OFFICE MOVING

Leonardo/ISAST is moving its office. Please note the new
contact information as of 1 May, 2004:

Leonardo/ISAST
211 Sutter Street, Suite 800
San Francisco, CA 94108
phone: (415) 391-1110
fax: (415) 391-2385
E-mail: isast@leonardo.info
Web: http://www.leonardo.info

_____


```
 _____
|                              |
|          ISAST NEWS          |
|_____|
```


_____

IN MEMORIUM: IBA NDIAYE DIADJI

The international arts community lost a great friend and
activist with the death of Iba Ndiaye Diadji in Dakar, Senegal,
on 11 November, 2003. Actively involved in union life in
Senegal, Iba Ndiagye Diadji was a leader in both the
Confederation of Independent Unions (CSA: Confédération des
syndicats autonomes) and the Sole Democratic Union for Educators
in Senegal (SUDES: Syndicat unique et democratique des
enseignants du Senegal). As a critic of art, he worked to
establish the importance of contemporary Senegalese artists,
particularly those whose works remained infused with Senegalese
culture while working with evolving concepts and technologies.
Through his participation in ISEA, Leonardo, Ars Electronica,
Dak'Art, and other international groups, he touched the lives
of many people in both Senegal and abroad.

As a professor of aesthetics at the University of Cheik-Anta-
Diop in Dakar-Fann, Iba Ndiaye Diadji worked in the areas of art
criticism and philosophy. After he was introduced to the
electronic arts through the Virtual Africa project, co-sponsored
by ISEA and Leonardo, Iba began to turn his attention to
Senegalese artists and their quest to work with the new
electronic forms of art. In the words of his colleague Viyé
Diba, "He had a particular point of view on contemporary African
arts, one that was marked by the reality of Africa but open to
world movements."

Born 19 October, 1950, in Saint-Louis, Senegal, Professor
Ndiaye Diadji studied at the University of Dakar before becoming
a teacher, with advanced studies at the University of Dakar and

at the Sorbonne. He leaves a wife and four children. Iba Ndiaye Diadji will be especially remembered as a spokesperson for African art in the electronic arts community and as a proponent of bringing contemporary global culture to Senegal. He believed that Senegalese artists should not have to choose between global and local culture to gain recognition.

Cynthia Rubin, with thanks to Catherine McGovern and Viyé Diba

_____

IN MEMORIUM: PIOTR KOWALSKI

We are saddened by the recent death of Piotr Kowalski. Kowalski's artwork enabled us to see things in a new light that would make them seem so simple, so natural, so evident. "I'm a painter of nature," he used to repeat, "technologies are our ears and eyes to perceive the world."

As a self-taught student of science and mathematical logic, Kowalski left Poland in 1946 at the age of 19, taking with him Wilhelm Reich's *The Function of The Orgasm*. From 1947 to 1952, he studied mathematics with Norbert Wiener and visual arts with Gyorgy Kepes at MIT in Boston, Massachusetts. Kowalski graduated with a degree in architecture and went on to work in the offices of I.M. Pei and Jean Prouvé.

>From 1958 onwards, Kowalski turned his works towards experimental sculpture and architecture. He authored such minimal works as stamp printing, which reminded us that we are involved in a permanent journey through space. He also created monumental works in urban planning projects such as La Défense, Marne la Vallée, Brest, etc. He utilized various materials in his work: simple (mirrors), natural (heat, plant growth, wind), artificial (dynamite, neon, electricity, holograms), traditional (granite, steel, glass) and experimental (rare gas, electrical fields, gas ionization).

Kowalski did not separate poetry, science and sculpture, which is why his work, although sometimes disconcertingly diverse, is in fact characterized by an utmost aesthetical coherence. Developed at MIT and presented at the Pompidou Center in 1981, Kowalski's *Time Machine* involved microprocessors, early picture digital storage and real-time digital processing. This prototype, or "tool of art" as he preferred to call it, allowed the spectator-experimenter to explore, through the disruptions of his own image and with his body itself, the reversibility of time.

When we invited him to Marseille, Kowalski chose to realize a sound sculpture: the word "passionately," pronounced by his friend, the poet Guerassim Luca. Employing an otherwise ignored application on our machines, a 3D-real time graphic visualization of sounds, Kowalski conceived his sculpture as not merely the metaphor of "passionately." Not a mere recording, it contained the process that had generated it, analytical technique (sampling), mathematics (Fourrier translation), and geometry (sized layout of the samples). It allowed one to imagine that one could get back the voice of the poet pronouncing the word. "What you see is not the sculpture you think you see, this is the dumb voice of my friend, this is the silensophone."

Jean Delsaux

_____

PRELIMINARY ANNOUNCEMENT: INTERNATIONAL ART AND TECHNOLOGY
HISTORY CONFERENCE

Leonardo, UNESCO DIGIARTS, Database for Virtual Art and the
Banff New Media Institute are collaborating to produce the first
international art history conference covering art and new media,
art and technology, art-science interaction and the history of
media as pertinent to contemporary art.

The three-day conference, followed by a two-day speakers and
organizers retreat, will be held 28 September - 2 October, 2005,
at the Banff Centre, Canada. An international advisory board,
chaired by Oliver Grau of Humboldt University, is currently
designing the program. Panels and workshops will feature
speakers chosen by the advisory board and by peer review.

A program description will be available this summer and a call
for papers announced this fall. Graduate students in the field
are encouraged to participate. To stay informed of developments,
email banffleoarthistconfinfo-subscribe@yahoogroups.com

_____

LEONARDO/ISAST PARTICIPATION WITH COLLEGE ART ASSOCIATION

Leonardo/ISAST had a strong and successful presence at the 2004
College Art Association (CAA) conference in Seattle. On the
first day of the conference, Leonardo/ISAST held an affiliated
society panel discussion entitled: "Art, Science and
Technology: Problems and Issues Facing an Emerging
Interdisciplinary Field." The panelists included session chair
Mark Resch, Onomy Labs; Julio Bermúdez, University of Utah;
Nina Czegledy; Roger Malina, *Leonardo* Executive Editor; and
Sheila Pinkel, Pomona College of Art. On the last day of the
conference, Leonardo/ISAST held a town hall meeting, to which
all members of the Leonardo community as well as other
interested individuals were invited to voice their concerns and
receive feedback. Representatives from Leonardo staff and
committees were present to answer questions and take note of
pressing issues in the community. Both sessions were heavily
attended and provoked strong enthusiasm, discussion and
brainstorming.

Attendees to these sessions indicated a strong demand for
greater collaboration and integration between Leonardo and CAA,
prompting the formation of a Leonardo/CAA Working Group. This
group comprises individuals who are members of both CAA and the
Leonardo network and will work on growing bonds between the two
organizations. The President-Elect of CAA, Ellen Levy, was
present at the Leonardo Town Hall meeting, and is enthusiastic
to promote this interaction.

If you are interested in joining the Leonardo/CAA Working
Group, we would like to invite you to do so at:
http://groups.yahoo.com/group/leonardocaacommittee/

_____

LEONARDO NETWORK MEMBER PROFILE:
JULIO BERMÚDEZ, LEONARDO/ISAST INTERNATIONAL ADVISORY BOARD

Julio Bermúdez is an Associate Professor at the University of
Utah College of Architecture and Planning (Salt Lake City,
USA). His research and creative work has focused on digital
media and the application of architectural concepts to data
environments. Professor Bermudez has received international
recognition as a design expert on hybrid representations,
methodologies and technologies involving analog and digital
systems. Of particular relevance is his invention of the
CyberPRINT, a virtual reality-based performing art project that
brings together dance, choreography, music, engineering,
medicine and architecture. This and other work has been widely
published, exhibited and/or performed in the U.S. and abroad.
Dr. Bermudez is currently involved in several interdisciplinary
projects dealing with information architecture applied to
medicine, finance, process control, and network monitoring.

See Julio Bermúdez's editorial in this issue.

_____

LEONARDO NETWORK MEMBER PROFILE:
PENELOPE FINNIE, LEONARDO/ISAST GOVERNING BOARD

Penelope Finnie was a co-founder of Ask Jeeves, a public
Internet search engine incorporated in 1996. While at Ask
Jeeves, she developed Ask Jeeves for Kids and was a producer,
art director, executive editor, biz dev person, strategist,
chief evangelist and recruiter, sometimes all at once. Her
final role there was chief creative officer. Prior to Jeeves,
she had a web development company. For 10 years, she was a
painter in the Washington, D.C., Baltimore area. She has a BA
from Princeton in art history/studio art and a MFA from
Columbia University. She serves on the board of the Oakland Art
Gallery.

_____

```
 _____
|                 |
|                 |
|     CREDITS     |
|                 |
|_____|
```

fAf-LEA Corresponding Editors:
Lee Weng Choy, Ricardo Dal Farra, Elga Ferreira, Young Hae-
Chang, Fatima Lasay, Jose-Carlos Mariategui, Marcus Neustetter,
Elaine Ng, Marc Voge

_____

```
 _____
|                   |
|       LEA         |
| WORLD WIDE WEB    |
|      ACCESS       |
|_____|
```

For over a decade, Leonardo Electronic Almanac (LEA) has thrived
as an international peer-reviewed electronic journal and web
archive, covering the interaction of the arts, sciences and
technology. LEA emphasizes rapid publication of recent work and
critical discussion on topics of current excitement. Many
contributors are younger scholars and artists, and there is a
slant towards shorter, less academic texts.

Contents include Leonardo Reviews, edited by Michael Punt,
Leonardo Research Abstracts of recent Ph.D. and Masters theses,
curated Galleries of current new media artwork, and special
issues on topics ranging from Artists and Scientists in times of
War, to Zero Gravity Art, to the History of New Media.

LEA is accessible using the following URL: http://lea.mit.edu

_____

```
 _____
|       LEA       |
|   PUBLISHING    |
|   INFORMATION   |
|_____|
```

_____

_____

< Ordering Information >

http://mitpress.mit.edu/catalog/item/default.asp?ttype=4&tid=27&
mode=p

Leonardo Electronic Almanac is free to Leonardo/ISAST members and
to subscribers to the journal Leonardo for the 2004 subscription
year. The rate for Non-Leonardo individual subscribers is $35.00,
and for Non-Leonardo institutional subscribers the rate is
$77.00. All subscriptions are entered for the calendar year only.

All orders must be prepaid by check (must be drawn against a U.S.
bank in U.S. funds), money order, MasterCard, VISA, or American
Express. Where student subscription rates are available, a
verification of matriculant status is required.

Note: In order to place orders electronically, you must be using
a browser that is SSL-compliant. If you are unable to open the
ordering link listed above, then your browser does not support
the security features necessary to use this interface. Please use
the addresses below to submit your order. Address all orders and
inquiries to:

Circulation Department
MIT Press Journals
Five Cambridge Center
Cambridge, MA 02142-1407 USA
TEL: (617) 253-2889 (M-F, 9-5)
FAX: (617) 577-1545 (24 hours)

For questions contact:
journals-orders@mit.edu (subscriptions)

_____

      _____
     | |
     | ADVERTISING |
     |_____|

Leonardo Electronic Almanac is published monthly --
individuals and institutions interested in advertising in LEA,
either in the distributed text version or on the World Wide Web
site should contact:

Leonardo Advertising Department
211 Sutter Street, Suite 800
San Francisco, CA 94108
phone: (415) 391-1110
fax: (415) 391-2385
E-mail: isast@leonardo.info
More Info: http://mitpress2.mit.edu/e-
journals/Leonardo/isast/placeads.html#LEAads

_____

```
 _____
|                       |
|   ACKNOWLEDGEMENTS    |
|_____|
```

_____

< End of Leonardo Electronic Almanac 12 (05) >

_____