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In this issue of the Leonardo Electronic Almanac, we delve into
our archives to present an excerpt from an article first
published 10 years ago in LEA.

The text, by David Blair, explores the effects of navigating in
immersive environments, a subject still relevant to readers
today.

Also in this issue, readers will find the complete index of
articles published in LEA last year. We continue encouraging
authors to submit abstracts, articles and artist statements to our upcoming
special issues on digital histories in the electronic arts,
critiquing Asia Pacific strategies in the digital arts and from
the extraordinary to the uncanny. Check out the opportunities
section for details.

In Leonardo Reviews, we feature Michael Punt's selection of
four reviews: "Animal, Vegetable, Video" is reviewed by Luisa
Paraguai Donati, Dene Grigar reviews "Sex, Time and Power: How
Women's sexuality Shaped Human Evolution", Wilfred Niels Arnold
looks at "Painted Love: Prostitution in French Art of the
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In the Leonardo Abstracts Service, read about Peter Anders'
thesis: "A Procedural Model for the Integration of Physical and
Cyberspaces in Architecture", and a taste of things to come in
the *Leonardo* Journal, Vol. 37, No. 3.

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ONE FROM THE VAULT - 10 YEARS AGO IN LEA

This month, we introduce a new LEA feature (although
technically speaking, it is really an old feature!).

From this issue, LEA subscribers can easily access backissues
in our recently modified archives section which dates back to
the inaugural September 1993 issue.

To give you a sense of what is available online, we are
reprinting partial text of an article published in the Leonardo

Electronic Almanac Vol.2 No.4 (April 1994) issue, when LEA was in its infancy: "Metavirtue and Subreality" or "The Involuntary Walker as Virtuous Subject Yet Only Semi-Intelligent Agent" or "Birds or No-Ledge to Stand on," by David Blair.

The full article, as well as many others, can be viewed in its entirety at: http://mitpress2.mit.edu/e-journals/LEA/archive.html

METAVIRTUE AND SUBREALITY OR "THE INVOLUNTARY WALKER AS VIRTUOUS SUBJECT YET ONLY SEMI-INTELLIGENT AGENT" OR "BIRDS OR NO-LEDGE TO STAND ON"
by David Blair, New York, U.S.A.

1 DISNEYLAND

It's 9:45 PM, and I'm walking through New Orleans Square at Disneyland-Anaheim. The water show is in full swing, with miraculous sudden set changes... the giant pirate boat with 50 actors has turned and completely hidden behind a corner too small for it and multiple 30-foot evil magic-mirror faces hang on mist screens above the water. I decide to take a sudden turn myself, to visit the Pirates of the Caribbean ride. A few feet down the path, the crowd is gone, and the water show almost inaudible. The ride is a narrow water way with flat bottom boats inexorably driven forwards through the artificial landscape by a fearsome chain and gear mechanism hidden by the water. I'm in my seat, and 20 seconds later we are underground, on a river in a cave system somewhere beneath Disneyland, somewhere in the Caribbean, probably near the storage space of that missing water-show pirate ship. And, simultaneous with all this, I am almost back in the Carlsbad Caverns National Monument, true wonder of the underworld, alone, after midnight, during the production of my film "WAX or the discovery of television among the bees". Floating on a boat attached by bottom chains to an artificial underground Disney- Caribbean river is not that much different from walking alone, at midnight, through the unbelievable underground and path-determined space of Carlsbad Caverns, moving in half-light among giant rock forms. That afternoon, deeper in the cave, I'd had a beekeeper's suit on and been standing around the corner of the one-way path from a cameraman, almost leaning on a fractionally detailed limestone formation. On the cameraman's cue, I was supposed to suddenly create a material wipe by walking around the corner, but we had to keep delaying the shot as tourists kept appearing behind me on the one-way path... surprising me, but not themselves. I was just part of the landscape, and several even said: "The Moon, huh?", before turning the next corner and finding the camera. I was part of their ride, but they knew I was also a thousand feet underneath the moon, maybe somewhere in France on the set of a Melies movie, or perhaps back at Disneyland, back at Pirates of the Caribbean.

An interesting and vital part of navigation in immersive environments is the effect of sudden mode change.... often, turning a corner, you are instantly in another environment, as if you had just passed through the spatial equivalent of a soft-edged wipe. What is shocking is that these mode changes can often take you to an environment which contradicts the one you just came from, both in appearance, and in meaning and use... like turning a smooth corner at the base of the Matterhorn at Disneyland, and ending up at the end of a row of urinals.

The first effect of this spatial mode change, I believe, is that one becomes more susceptible to association. In other

words, free navigation in an immersive environment leads to mode
changes, and mode changes lead to an increase in association. ..
sometimes internal, and sometimes external. The latter we call
coincidence.

[THIS TEXT CAN BE VIEWED IN ITS ENTIRETY BY LEA/LEONARDO
SUBSCRIBERS AT:
http://mitpress2.mit.edu/e-journals/LEA/archive.html]

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JULY 2003 - VOL. 11, NO. 7
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Seda Gyrses (Berlin, Germany)
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Dawn Stoppiello and Mark Coniglio (U.S.A.)
FleshMotor

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        |        LEONARDO REVIEWS        |
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This month, Leonardo Reviews has slipped back into synch with
the LEA publishing cycle and offers ten reviews of books,
websites and exhibitions. We are particularly pleased to welcome
a new reviewer, John Knight, who is a designer working on issues

of usability of websites, among other things. It seems appropriate then that this month we also have another review from Luisa Paraguai Donati of Sam Easterson's website. We also welcome contributions from our loyal supporters, Roy R. Behrens, Wilfred Niels Arnold and Rick Mitchell. To compliment these, Aparna Sharma reviews an interesting publishing project from India and Rob Harle takes a look at Jay David Bolter and Diane Gromala's new book from MIT Press. Finally a special thanks this month to Dene Grigar, who has not only filed a fascinating review but has also managed a new team of interns to produce "camera-ready" copy for the website.

These reviews and our archive can be found at http://leonardoreviews.mit.edu.

Michael Punt
Editor-in-Chief
Leonardo Reviews

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Reviews Posted April 2004:

Animal, Vegetable, Video, by Sam Easterson
Reviewed by Luisa Paraguai Donati

The Art of Looking Sideways, by Alan Fletcher and Beware Wet Paint, by Alan Fletcher
Reviewed by Roy R. Behrens

Emotional Design: Why We Love (Or Hate) Everyday Things, by Donald Norman
Reviewed by John Knight

Mehmet G³lery³z. Forty Years of Drawing: Retrospective Drawing Exhibition 1963-2003, by Nihal Elvan, Ed.
Reviewed by Aaris Sherin

Painted Love: Prostitution in French Art of the Impressionist Era, by Hollis Clayson
Reviewed by Wilfred Niels Arnold

The Puppet and the Dwarf: The Perverse Core of Christianity, by Slavoj Zizek
Reviewed by Rick Mitchell

Sarai Reader 03: Shaping Technologies, by Ravi Vasudevan, Ravi Sundaram, Jeebesh Bagchi, Monica Narula, Shuddhabrata, Sengupta [Sarai], Geert Lovink, Marleen Stikker [Waag], Eds.
Reviewed by Aparna Sharma

Science, Not Art: Ten Scientists' Diaries, Jon Turney, Ed.
Reviewed by Rob Harle

Sex, Time and Power: How Women's Sexuality Shaped Human Evolution, by Leonard Shlain
Reviewed by Dene Grigar

Windows and Mirrors: Interaction Design, Digital Art, and the Myth of Transparency, by Jay David Bolter and Diane Gromala
Reviewed by Rob Harle

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ANIMAL, VEGETABLE, VIDEO
Website by Sam Easterson, http://www.anivegvideo.com/

Reviewed by Luisa Paraguai Donati, Department of Multimedia,
Institute of Arts, Unicamp, Brazil
luisa@iar.unicamp.br
http://wawrwt.iar.unicamp.br

This website is part of a larger project called *Animal,
Vegetable, Video*, on which video artist Sam Easterson has been
working for the last five years. In 1988, he was commissioned by
the Walker Art Center in Minneapolis to create a new video
project. For that project, he outfitted a flock of sheep with a
helmet-mounted video camera. Since then, he has been designing
such cameras to be attached to animals and plants of all kinds.
Micro video cameras are also placed deep inside the animals and
plant habitats showing how they live, behave and move in their
own environments. Therefore, the project has produced an
extensive collection of video footage and created a network of
artists and scientists by developing video exhibitions for art
centers and working with researchers in different scientific
institutions.

The web design is simple, clean and entirely based on screens
and windows with an animated movement of colored squares on a
white background to aesthetically formalize the idea of these
video experiments. Web users can easily browse to get
information and video footage by clicking on the names of
animals or choosing specific habitats.

Watching some of the videos, it is clear that the author is
interested in "looking and in the process of looking" in
conducting his process of creation. The viewer can get different
references of the environment according to each animal and its
characteristic rhythm, body movement and sounds, such as a
scorpion, an alligator or a wolf. The perspective of captured
images creates a specific visual experience by linking the
perceiver and different views, the individual and the landscape.
The viewer is thus not only an observer of the scene but also
the first person in the video narrative.

By thinking about new technologies and the possibility of
having different perspectives to approach the world, we can
mention another concept here - that of "mediated presence" [1],
in which it is possible for participants to phenomenologically
experience the "sense of being there." In some way, the
participants' presence can be projected, extended into a
physical remote space through other spatial references.
According to the interface used, the participants can provoke,
more or less, interferences with it.

Another interesting point to me personally in this project is
the use of head-mounted technology inserted in the animal's body
spatiality. This reminds me of the idea of the wearable computer
and its use for specific tasks [2], by which the "wearer"
becomes capable of enhancing physical activities and/or bodily
limits. The technological mediation in the communication process
has increasingly allowed a redefinition of the limits of our
action and perception and a (re) modeling of the realities of
our body.

NOTES

1. Marvin Minsky mentioned the term "telepresence" for the first time in 1980, inspired by Robert Heinlein's novel, *Waldo*. He thought of "remote presence" as those occurrences when participants can influence the form and/or content of the mediated presentation or experience as in definition. Since then, the concept of mediated presence has been extensively discussed and for Biocca (1997) can be briefly presented as consisting of two interrelated phenomena: "telepresence - the phenomenal sense of 'being there' and mental models of mediated spaces that create the illusion, and social presence - the sense of 'being together with another' and mental models of 'other intelligences' that help us simulate 'other minds.'"

2. Bass (1997) suggests five characteristics in defining a wearable computer: "it may be used while the wearer is in motion; it may be used while one or both hands are free, or occupied with other tasks; it exists within the corporeal envelope of the user, i.e., it should be not merely attached to the body but becomes an integral part of the person's clothing; it must allow the user to maintain control; it must exhibit constancy, in the sense that it should be constantly available."

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M. Minsky, "Telepresence," in *OMNI* Magazine (May 1980) pp. 45-52.

L. Bass, Conveners report of CHI '97 Workshop on Wearable Computers, Personal communication to attendees (1997).

L. Santaella, "Culturas e artes do p¾s-humano, da cultura das mÝdias Ó cibercultura" (SÒo Paulo: Editora Paulus, 2003).

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SEX, TIME AND POWER: HOW WOMEN'S SEXUALITY SHAPED HUMAN EVOLUTION by Leonard Shlain, Viking Press, New York, 2003. 420 pp., illus. 41 b/w. Trade, $25.95. ISBN: 0-67003-233-6.

Reviewed by Dene Grigar, Texas Woman's University. dgrigar@twu.edu

When encountering a book concerning a subject like the anthropology of sexual attraction and social evolution published by a non-academic press and written by an author with no discernible training in the field, an educated reader knows to approach the ideas advanced in that book as interesting if fanciful. When the publisher in question is a large popular press with a vast marketing department and the author appears to be a charming and fascinating story-teller, then it is likely that some readers may allow themselves to be seduced by the flight of fancy and be taken on a wild goose chase - and end up the goose.

This is precisely the problem with *Sex, Time, and Power: How Women's Sexuality Shaped Human Evolution*, by Leonard Shlain. A cursory search on the Web reveals the extent of the damage such whimsy can produce. From "Why Your Wife Won't Have Sex With You" to a delineation of the brain power of Biblical characters in "Time, Menses, Left Brain" to "promoting intimacy and other-centered sexuality" among a group called "Liberated Christians," this book does not merely strike a chord with its readers; it verifies all of the preconceived notions of gender difference some readers could ever hope to come across for pushing their own political, social and religious agendas.

Let us be clear: *Sex, Time, and Power* is neither hard science nor is it anthropology. It is, instead, mythology. And because the narrative is highly engaging, it can be, on the surface, amusing mythology at that.

The book was generated from a question the author had pondered when he was a young medical student – "Why do women menstruate?" – and has as its premise the idea that women's need for iron drove many, if not all, of "human cultural innovations" (p. xii), in particular the knowledge of time, which ultimately resulted in the loss of her power. With this idea in mind, Shlain looks at such issues as incest, homosexuality, courting practices, marriage and death, to name a few. Along the way he gives us dialogues with Adam, Eve and members of their tribe; recountings of schemes made by campfires in 40,000 BC; and a worldview organized in a recognizable dualism (man, left-brained, sex-crazed; woman, right-brained, uses sex to get what she wants from man). He tells us in the preface that the book is meant for "both generalists and specialists" and that he avoids the "standard academic practice of citing the pedigree of a particular idea" (p. xiii). Lucky thing, too, since some of his logic would never pass the review process of a reputable science journal or scientific board of an academic press. This reviewer counted no less than 39 instances where faulty logic and gross generalizations were used to make a point.

Some of the most pernicious of these include the idea that early homo sapiens women, "after a lifetime of lovemaking ... would have spent hours discussing the sexual idiosyncrasies of their diverse male partners and comparing their experiences." He then comes to the conclusion that these women would have been responsible for promoting male circumcision as a way of delaying their lovers' orgasms (p. 93) – an interesting idea that flies in the face of the fact that circumcision rites are performed by older men upon younger ones. Another is his adopted view of the relations between genders that reduces men's value to their ability to provide meat and women's to their ability to give sex (p. 113). While some may look around at today's couples and agree with this assertion, this theory disregards man's need to satisfy his own hunger and woman's interest in her own orgasm that could have also shaped our social development. And hadn't he claimed that circumcision came about because women wanted better sex?

But truly the most awful claims remain in his discussions about rape and pornography. In terms of the former, he asserts that "speech affords a woman the chance to determine in advance . . . whether her suitor has the predisposition or intention to harm her" (p. 205). How many women who have been date-raped would agree that they could have known their suitors had darker intentions in mind by simply talking to these men? In the latter, he tells us that "pornography would disappear tomorrow

if women were as eager to have sex and behaved sexually as indiscriminately as men" (p. 352). From that standpoint, pornography is women's fault. Rest assured, there are 35 more of these jewels in this tome, and these do not address the major problem with his chronology: that all of these innovations regarding sex, time and power occurred in 40,000 BC, an idea

that stands against the discoveries of birth goddess artifacts by Marija Gimbutas and others.

Anyone who seeks to end misogyny and who questions the inequities of power between the genders rates our attention. And as stated previously, when that person has a gift for story-telling, we may not even mind wading through the mire of misinterpretation of data to hear out the teller. But in the end, the most discriminating of readers should realize that the stories told are simply that, stories. The problem lies in that they are presented as The Truth. This is the point where the stories cease to be amusing and become insidious and we can say that the book is seriously flawed.

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PAINTED LOVE: PROSTITUTION IN FRENCH ART OF THE IMPRESSIONIST ERA by Hollis Clayson, Getty Trust Publications, Los Angeles, 2003. 202 pp., illus. 64 b/w, 29 col. Trade, $24.95; paper (Yale, 1991). ISBN: 0-89236-729-6.

Reviewed by Wilfred Niels Arnold
warnold@kumc.edu

The sketchbooks of visual artists are often of considerable interest in revealing evolutions into final drawings or paintings. They may also expose more spontaneous sides, date novel views and offer clues to individual professional developments. The same is true for preliminary paintings, unfinished works and things that fall behind the piano. But some of us worry a bit about the extent of posthumous interpretation that these artists would have wished for and, given the opportunity, whether they would have preferred tossing out immature or unsuccessful creations. Not so Hollis Clayson, who seems to have assembled under one cover everything she found - she gives Degas, Cezanne and Manet particularly exotic trips.

In several cases the themes and goals behind the art are more ambiguous than *Painted Love* would have us believe. For example, the story behind Cezanne's *A Modern Olympia*, his attempt to impress Dr. Paul Gachet by whipping off a match to Manet's *Olympia*, is not properly developed. I was disappointed in the lack of definition of the title subjects and came away wondering if some of the images were really of prostitution, as claimed, or rather of something more flirtatious and less commercial. Readers who might reasonably expect some comparisons (visual or narrative) with "wholesome painted love" (from the same era in Paris, or from London) will search in vain.

Although the title gives great weight to the impressionists, the book's coverage is not restricted to this less than homogeneous group or to their era. Manet, for instance, who is featured on the cover, has a special relationship to the impressionists that is not properly explained. Likewise, the post-impressionists should at least have been identified as

such. Including Pablo Picasso is a bit much, especially since Toulouse-Lautrec is mentioned en passant as early as page 3, but never illustrated.

In general, the paper and print quality are quite reasonable although the number of color plates is a bit mean and some editorial decisions such as a black and white reproduction for Manet's *Olympia* are hard to fathom. The index concentrates on names and neglects subjects - a quick survey found many omissions. This is a picture book with a titillating title that will find its way to more coffee tables than desks.

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WINDOWS AND MIRRORS: INTERACTION DESIGN, DIGITAL ART, AND THE MYTH OF TRANSPARENCY
by Jay David Bolter and Diane Gromala,
MIT Press, Cambridge MA, 2003.
208 pp., 59 illus. Trade, $29.95. ISBN: 0-262-02545-0.

Reviewed by Rob Harle, Australia
recluse@lis.net.au

Is your computer simply a tool that allows you to create a document or graphic image and, in so doing, remains transparent (a window) to the creation? Or is the digital environment, including peripherals, the medium (a mirror) itself? This excellent book critically analyzes this concept. It is most timely as computer technologies, like many other things we humans do, we do without any planning. Computers and associated software and networks have in a sense evolved in a higgledy-piggledy fashion with little critical comprehensive planning.

Windows and Mirrors challenges the predominant view, espoused by computer engineers and programmers, that this marvelous digital tool should be transparent to the information it processes and displays. As an example, these engineers, who Bolter and Gromala call the "structuralists," believe that web pages should convey information in the most straightforward and clear manner possible. "Bell and whistle" creations, using programs such as Flash, are at best wasteful and at worst actually distort the real purpose of communication.

In contrast to the "structuralists'" view that, "computers are information appliances" (p. 2), the "interaction designers" would argue that if a person is not attracted to the medium through well-designed graphic interfaces in the first place, they will never get to the information anyway: "I believe design drives the user's experience" (p. 4). The book provides a well-presented and thoughtful treatment of this challenging debate.

Whilst the book is specifically about digital art, it says that "it is written for digital designers and technologists in general: Web designers, educational technologists, graphic designers working with and in digital forms, interface designers and human-computer interaction (HCI) experts" (p. 2).

Windows and Mirrors looks specifically at the SIGGRAPH 2000 Art Show. This "carnival for the twenty-first century" (p. 10) is an academic conference as well as trade show, with the latest releases of software packages such as Photoshop and OpenGL. Perhaps most importantly, it presents the very latest creations of digital art featuring the work of 60 leading digital artists.

A selection of their work is included and discussed throughout the book, together with black-and-white photographs. I found the work, "Wooden Mirror" (p. 32) especially fascinating.

Chapter 9 starts with the following statement: "Designers cannot afford to ignore the need for transparency, but they can show the Structuralists how sites can be reflective as well as transparent" (p. 151). It appears that a compromise between the "byte wasting" of visual designers and the deadly dull "pure content" in one boring typeface of the "Structuralists" may be happening.

It annoys me somewhat that these extreme dichotomist views waste so much unnecessary time and energy, like the so-called "mind-body" problem in philosophy. The problem only exists because of the incorrect way of posing the question. Similarly, there really should be no need for a book such as this because in essence there can be no absolute structuralist or designer position; it is only a question of how much design and interaction is the optimum for a total user experience and this is a question especially relevant to psychological investigation. Even the staunchest structuralist philosophy still uses fonts and text layout dictated by ASCII standards. For those that are old enough to remember, the artistically inclined amongst us developed clever graphic images using only ASCII characters to communicate visually - like the dog banner of FidoNet. This demonstrates in a small way the intrinsic need for an artistic component in all things we create, from bridges to kitchen sinks to clothes.

This book goes a long way in helping to bridge this unnecessary tension that has shades of the architectural "form versus function" dichotomy. Having done this successfully, it then provides inspiring examples, especially through the SIGGRAPH art, for all concerned in extending or implementing our digital future.

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LEONARDO 37:3 - ABSTRACTS

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SMELL YOUR DESTINY: WEB INTERACTION WITH THE FIFTH SENSE
by Sonya Rapoport

Smell Your Destiny is a fishy tale that parodies the quest for success exhibited in the 21st-century cyber-personality.

This article is adapted from the author's web project, where traits formerly considered undesirable and now considered desirable for achieving success are administered to the populace by means of aromatherapy. Play-on-word medications, derived from the names of actual pharmaceuticals, are prescribed in pill form for ingestion by fish that swim in community gene pools. The pills induce curative fish fragrances that are exuded by the fish into the environment. Trait changes occur when residents breathe in the fumes, which are prescribed to accommodate current societal values. URLs and links within the work provide access to virtual smelling sites.

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ORAI, OR HOW THE TEXT GOT PLEATED: A GENEALOGY OF *LA PLISSURE DU TEXTE: A PLANETARY FAIRYTALE*
by Roy Ascott

This paper is an attempt to make sense of the Japanese word orai and to consider in what way the author's own "comings and goings" across artistic, literary and esoteric pathways led to the formulation of his practice, later to be theorized as telematic art and to be understood as a form of associative connectivism. The paper focuses on La Plissure du Texte, his first project involving distributed authorship.

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ORAI AND THE TRANSDISCIPLINARY *WUNDERKAMMER*
by Michael Punt

The inevitable realization in scientific circles that the reality of the imagined has an equivalent epistemological significance to the material raises fascinating questions, as it invites a skeptical reconsideration of the essential basis of knowledge. While this dramatic shift provides a moment of profound satisfaction for those artists, designers and scientists who have long argued for a transdisciplinary worldview, it also provides a moment of the greatest challenge as we begin to consider how knowledge might be extended, codified and distributed in a multiverse of collaborative realities.

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INTO THE HOLLOW OF DARKNESS: REALIZING A 3D INTERACTIVE ENVIRONMENT
by Anne-Sarah Le Meur

The author considers the meaning of interactivity and the potentials of virtual environments, in particular in the exploration of the total visual field and its periphery. She presents her artistic project, the aim of which is to cause viewers to become more sensitive to their own perceptions, respecting images and indistinct sensations that may arise.

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RESISTING SURVEILLANCE: IDENTITY AND IMPLANTABLE MICROCHIPS
by Nancy Nisbet

Surveillance technologies and centralized databases are threatening personal privacy and freedom. Radio Frequency Identification (RFID) microchip technology is one of several potential human tracking and authentication systems. The author's interactive art installation, *Pop! Goes the Weasel*, aims to explore opportunities for resisting surveillance by altering underlying assumptions concerning identity. Viewers are encouraged to experiment with resistance by avoiding access control, intervening in the database and subverting notions of a stable or single identity. The author is planning a future project to develop an interface between the author's two implanted microchips and her computer in order to track her computer usage as it relates to her technology-induced shifting sense of self.

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DIVISIONS OF THE PLANE BY COMPUTER: ANOTHER WAY OF LOOKING AT MONDRIAN'S NONFIGURATIVE COMPOSITIONS
by Loe Feijs

The article discusses a novel way of looking at Mondrian's nonfigurative paintings. Different periods of Mondrian's life correspond to distinct types of nonfigurative compositions, but can the distinction be formalized? How many bits or numbers are needed to characterize a typical composition? Can the rules of a composition type be expressed in the language of the computer? If distinct composition types require different computer programs, can these be based on a common framework, a mechanism, perhaps? The findings presented here are only tentative, but it is interesting to note that some characteristics can be modeled reasonably well, whereas others still resist formalization in the presented framework. The author's approach borrows principles from genetic programming. Employing a built-in random number generator, it can be used to explore a large space of "compositions."

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THE TURBULENT STRUCTURE OF *SFUMATO* WITHIN *MONA LISA*
by Diogo Queiros-Conde

The author describes a particular way of looking at the *Mona Lisa* whereby evidence of a turbulent structure (based on underlying *sfumato*) that reveals an infinity of hidden faces behind the famous figure can be seen. When light is progressively reduced by a "squinting process," the effect is especially striking in the last face on the edge of the painting's dark areas. The author interprets this visual phenomenon in the context of *entropic skins geometry*, which he has developed to describe the geometry and statistics of turbulent flows. Finally, the author argues that the form just under Mona Lisa's left shoulder can be interpreted as a human skull anamorphosis, as a kind of ironic signature by Leonardo.

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CREATIVE ASPECTS OF SONIFICATION
by Oded Ben-Tal and Jonathan Berger

A goal of sonification research is the intuitive audio
representation of complex, multidimensional data. The authors
present two facets of this research that may provide insight
into the creative process. First, they discuss aspects of
categorical perception in nonverbal auditory scene analysis and
propose that these characteristics are simplified models of
creative engagement with sound. Second, they describe the use of
sonified data in musical compositions by each of the authors and
observe aspects of the creative process in the purely aesthetic
use of sonified statistical data.

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A UNIQUE ART FORM: THE FRIEZES OF PIRG
by Alice V. James, David A. James and Loukas N. Kalisperis

In the village of PirgÝ on the Greek island of Chios, the
faÞades of hundreds of buildings are completely covered with
gray and white friezes. Circles, squares, triangles and
rhomboids are used to create a lively geometry, ranging from the
straightforward to the complex, to give each house its
distinctive identity, its own unique face to display to the
world. While analyzing the frieze designs, the authors
discovered that the frieze artists intuitively obey a unique set
of color-reversing rules. The goal of the project was to explain
this powerful art form and to discover the essential
mathematical structure underlying these color-reversing friezes.

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FROM PERCEPTION TO CONSCIOUSNESS: AN EPISTEMIC VISION OF
EVOLUTIONARY PROCESSES
by Marc-Williams Debono

The concept of plasticity provides a unifying hypothesis to
account for the natural properties of living systems as well as
the different levels of perception and information associated
with these systems. Are the metadynamics of evolutionary
processes able to describe the nature of consciousness as a
whole? The close study of the link between the coherence of
emerging objects and the way we think they appear allows us to
use the metaphor of a discontinuous bridge linking primitive
perceptions to consciousness just as brain plasticity is linked
to art.

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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

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AUTHOR
Peter Anders
ptr@mindspace.net

LANGUAGES FAMILIAR TO THE AUTHOR
English and German

THESIS TITLE
A Procedural Model for the Integration of Physical and Cyberspaces in Architecture

ABSTRACT
Research suggests that environments which hybridize technologies call for a conception of space as information, as a tool for and product of cognition. This moots the differences between *real* and *virtual* experience. The thesis proposes a model whereby architecture may employ this concept of space in the creation of hybrids that integrate physical and cyberspaces. Further, it articulates opportunities offered by architectural computation, in particular the digital simulation of space known as virtual reality (VR) and its networked, social variant cyberspace.

The dissertation presents important developments in architectural computation that disclose concepts and values that contrast with orthodox practice. Virtual reality and cyberspace, the foci of this inquiry, are seen to embody the more problematic aspects of these developments. They also raise a question of redundancy: If a simulation is good enough, do we still need to build? As technology matures and simulations become more realistic the challenge posed by VR/cyberspace to architecture only becomes more pressing. If the case for virtual idealism seems only to be strengthened by technological and cultural trends, it would seem that a virtual architecture should have been well established in the decade since its introduction.

After reviewing the history of design computation the dissertation pursues an assessment that reveals latent, accepted virtualities in design methodologies, instrumentation, and the notations of architectural practices. Of special importance is a spatial database that now pervades the design and construction processes. The unity of this database, effectively a project's cyberspace, and its material counterpart is the subject of the remainder of the dissertation. Such compositions of physical and cyberspaces are herein called *cybrids*. The dissertation examines current technologies that cybridize architecture and information technology, and proposes their integration within cybrid wholes. The concept of cybrids is articulated in seven principles that are applied in a case study for the design for the Planetary Collegium. The project is presented and critiqued on the basis of these seven principles. The dissertation concludes with a discussion of possible effects of cybrids upon architecture and contemporary culture.

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RE:SEARCHING OUR ORIGINS: Critical and Archival
Histories of the Electronic Arts
Guest Editors: Paul Brown <Paul@paul-brown.com> and
Catherine Mason <cs.mason@hart.bbk.ac.uk>

The mid- to late 20th Century has become a popular topic for
humanities research in recent years. Many projects are
attempting to re-discover and re-contextualise the somewhat
neglected field of history of art and technology. International
histories of electronic and digital arts are now beginning to be
written and voice given to the pioneers of these artforms.
Additionally, with contemporary 'new media' artforms such as
video and net art enjoying high prominence at present, much
discussion is taking place about the foundations of current
practice and about reception of electronic arts in cultural
institutions, including curatorial practice as well as archiving
and conservation issues.

This special issue of LEA seeks to report on international
projects and initiatives working to recover, document or
construct critical and historical contexts for the electronic
arts.

Topics of interest might include (but are not limited to):

* Origins of electronic and digital arts
* Key transition points, for example - from analogue to digital
* Art and technology collaborations
* Educational/access initiatives
* Critical analyses
* Cultural analyses
* Acquisition and conservation issues
* Etc…

For the LEA February 2005 issue, we invite contributions from
artists, practitioners, curators, theorists and historians that
engage with histories of the electronic/digital arts and
art/science/technology collaborations. These can include:

- full papers
- works in progress
- artists' statements
- museum and gallery initiatives
- etc…

Under three levels of submission:
- Fully refereed papers
- Shorter work that may be sent to peer review and
- Personal reminiscences and experiences that may be
editorially selected and not peer reviewed.

The guest editors are members of CACHe: Computer Arts,
Contexts, Histories, etc… a major research and archiving project
based in the School of History of Art, Film and Visual Media at
Birkbeck, University of London and funded by the UK Government's
Arts and Humanities Research Board. CACHe is documenting and
contextualising the early days of computer arts in the UK from
its origins in the 1960s to 1980, when the first "User Friendly"
systems began to appear. http://www.bbk.ac.uk/hafvm/cache/

LEA encourages international artists / academics / researchers
/ students to submit their proposals for consideration. We
particularly encourage authors outside North America and Europe
to send proposals for articles/gallery/artists statements.

Proposals should include:
- 200 - 300 word abstract / synopsis
- A brief author biography
- Any related URLs
- Contact details

Timeline
1 May 2004 - submission of abstracts
31 May 2004 - short-listed candidates informed
31 Sept 2004 - Contributors to submit full papers for peer review

Deadline for abstracts: 1 May 2004

Please send proposals or queries to:
Paul Brown <Paul@paul-brown.com> or
Catherine Mason <cs.mason@hart.bbk.ac.uk>

and
Nisar Keshvani
LEA Editor-in-Chief
lea@mitpress.mit.edu

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From the Extraordinary to the Uncanny:
the persistence of a parallel universe
Guest Editor: Michael Punt
< extraordinaryconnections@uk2.net >

We are seeking submissions of papers and other works from
artists historians, and theorists interested in this topic. In
particular we are calling for short papers (±2500 words) or
artists statements and image essays on:

* para-science and para-art
* spirit photography
* magic, conjuring and performance
* consciousness, precognition and the uncanny subject
* coincidence, narrative and psychoanalysis
* history and the inexplicable event
* sub-cellular phenomena and a macro reality
* toward a theory of unstable realities
* accident, memory and amnesia

LEA encourages international artists / academics / researchers
/ students to submit their proposals for consideration. We
particularly encourage young authors outside North America and
Europe to send proposals for articles/gallery/artists statements.

Expressions of interest and outline should include:
- 300 word abstract / synopsis
- A brief author biography
- Any related URLs
- Contact details

Deadline for expressions of interest: 30 April 2004
Deadline for accepted proposals: 10 September 2004.

Please send proposals or queries to:
Michael Punt
extraordinaryconnections@uk2.net

or
Nisar Keshvani
LEA Editor-in-Chief
lea@mitpress.mit.edu

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Network Leaps, Bounds and Misses: Critiquing Regional
Strategies for Digital Arts and Electronic Music
in Asia and the Pacific
Guest Editor: Fatima Lasay <fats@up.edu.ph>

Under the UNESCO Digi-Arts Knowledge Portal for technology-
based arts and music, an international colloquium took place on
4-5 December, 2003 at the Sarai Center for Study of Developing
Societies in Delhi, India. The meeting, entitled "Old

pathways/New travelers: new media, electronic music and digital art practices in the Asia Pacific region", sought to launch a media arts and electronic music initiative sponsored by UNESCO Digi-Arts and Sarai, to promote and develop research, networking, mutual cooperation, training and knowledge in these fields within the region. The meeting also aimed to point out the role and place of media and technology in a social, cultural and economic landscape inscribed by ancient histories of contact and paths that internally connect the landmass of Asia and the island cultures of the Pacific regions, its impact on young people and its potential as a unique tool to promote cultural diversity.

As critical and engaging discussions of such a network of associations are underway, what do our past and current national and regional practices reveal about the limits of localization, proximity and regional reification? What lies beneath or within concepts of media and technology as instruments for promoting cultural diversity? Is media and technology a result or cause of culture? What is the position of media, art and technology in the ontological divide between regionalization and globalization? In which aspects do we need to transcend the regional level in the regional network building efforts? What is the significance of local ontologies within the process of building a regional network?

Can asymmetrical local and regional development and promotion of digital arts in the region be addressed by mere institutional and conventional proximity? If geographic proximity is insuficient, then which conceptual spaces might provide a more solid basis for cooperative development? What critical and realistic approaches have been and can be made, in both imagination and actualization, to move in opposite directions and still meet together, across the globe, in building that strong and balanced support structure for digital arts in the region?

For the June issue of LEA, we invite contributions from artists, musicians, practitioners, curators and critics that address regional networking competence problems and realities in the field of digital arts and electronic music in the Asia Pacific cultures.

LEA encourages international artists / academics / researchers / students to submit their proposals for consideration. We particularly encourage authors outside North America and Europe to send proposals for articles/gallery/artists statements.

Proposals should include:
- 300 word abstract / synopsis
- A brief author biography
- Any related URLs
- Contact details

Deadline for proposals: 31 March 2004

Please send proposals or queries to:
Fatima Lasay
fats@up.edu.ph

or
Nisar Keshvani
LEA Editor-in-Chief
lea@mitpress.mit.edu

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New Media Designer
School of the Art Institute of Chicago

New Media Designer: The Department of Visual Communication
seeks a full-time faculty member with expertise in web- or video-
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Application curriculum vitae, course syllabi, artist statement
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Preferred Deadline April 1, 2004
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About School of the Art Institute of Chicago
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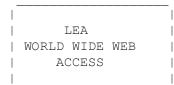full and part-time staff.

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contributors are younger scholars and artists, and there is a
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issues on topics ranging from Artists and Scientists in times of
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LEA is accessible using the following URL: http://lea.mit.edu

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