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EDITORIAL

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How time flies - we've arrived to the last issue for the year!

Highlights in this edition include Fatima Lasay giving us insight

into the discussions of myth and new media. And in LDR, Robert Pepperell reports on 'What Is It To Be Human?', Amy Ione reviews 'The Judgement of the Eye: The Metamorphoses of Geometry', and more ...

From LEA, we'd like to thank all our team based across the globe for their continued dedication, especially our corresponding editors for their tireless energy, and board of advisors for their strategic input. Special thanks to our managing editor patrick lambelet, assistant editor beth rainbow, and designer andre ho for their dedication.

Here's wishing all our readers a very merry christmas, and a glorious upcoming 2003! Happy holidays, and more excitement from LEA next year.

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FEATURE
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< Myth, Mind and Meaning in New Media >  
by Fatima Lasay, fats@up.edu.ph

### The Mythical Mind

A myth is a traditional story with supernatural elements, often explaining the origins of certain psychological, physical and natural phenomena. Their details and meanings allow people to see and perhaps understand the nuances and complexities of life. Myths also reveal to us how the imagination could bring together existential form and abstract form into a single reality of separate orders. Today's human conditions are highly mediated and the ubiquity of our technological devices ferries us between spectacle and reason, between aesthetics and intellection. In engaging this distance, both our imagination and positive knowledge turn again to myth.

In *\*The Story of Lynx\**, Claude Levi-Strauss points to myth as the earliest science of speculating the origins and maturation of the world, and how today, scientific breakthroughs and their limitations spur our dialogue with science to make mythological thinking actual again. In *\*Artful Science\**, Barbara Stafford suggests putting the Enlightenment's demonstration of pleasurable learning back into thinking with images, calling for a "democratic hermeneutics of pattern recognition and visual design" in the face of turmoil in visibility, the tension between truth and deception and "the artist as cheating in the production of well-crafted work." As a twenty-first century re-enlightenment offers fresh ideas for those caught in the eclipse of modern visual culture, I see a parallel approach by turning to our "primitive" mythological way of thinking.

I started looking at new media through the conceptual world of myths and their meanings upon observing the pattern of how new media is used to create new imaginative worlds of meaning. As an artist, the use of myths themselves figures prominently in my work and collaborations with other people. It was through this practice that I began to appreciate the significance of myth-making and the archetype as critical concepts that may be used in apprehending new media and new-media art practices.

## The Internet Soul

"Gimokud, The Melting Soul" is the title of a web-based exhibition of collaborative digital works by 32 artists visualizing the souls of 23 participants from 10 different countries. The on-line exhibition, completed 14 February, 2001, presents 52 digital works, each one a visualization of the ancient Philippine myth of the interrupted existence of the soul. According to this myth, the soul, or gimokud, goes about its customary existence at night, and at the rising of the sun, plucks a leaf, twists it into a vessel suggesting the form of a boat and seats itself upon it, waiting until the hot rays of the sun dissolve it into water. Only when darkness spreads over the land of the dead does the gimokud resume its active existence. In "Gimokud," participants uploaded their souls, digital images of their existence, and digital images of objects that they would bring with them if they were to travel as a gimokud. The recipient of their images would then create the leaf vessel upon which their gimokud would reside.

I call the "Gimokud" an "Internet soul project" because first, it was conducted entirely through the Internet - the exchange of texts, images and ideas were done through Internet e-mail and web-based forms; and, second, because "Gimokud" is a project that investigates the dynamics of identity, the avatar, in virtual space.

The project, with the soul as its center, required trust and mutual cooperation between the participants for its completion. The participants in the project would have to put their souls into the hands of strangers from across virtual space to craft the leaf vessels of their interrupted existence. In "Gimokud," cyberspace may well be the "Great Country" - a "mythical situation quite in accordance with the common primitive concepts touching the souls" of humans, animals and inanimate objects. In "Gimokud," we see how closely myth and the Internet flow into each other and how myths play out their avatars untiringly in cyberspace.

The binaries of existence in the virtual and physical world put new media and myth closely together. Many operations in the virtual world are extensions of our physical apprehension of objects and processes. In *\*The Power of Myth,\** Joseph Campbell holds that myth is the power of metaphor and poetry; the myth itself, while literally false, is metaphorically true. Our navigation in virtual space is rooted in a shared mythology, a universal archetypal stream from collective human experience that enables the metaphor to serve its functions. The tactile cognitive and graphical interfaces of our technological devices are all metaphors of our mundane physical world existence; these interfaces are the veils behind which the machine and its machinic language operate.

## The Electronic Shaman: Post-humanist

This relationship between matter and insensible prototypes is explored in another web-based new media work entitled *\*Ethermorph: The Shaman Acquires Her Powers through Initiation.\** The web installation derives from a physical exhibition entitled "Machinelanguage." In *\*Ethermorph,\** digital photographs of guests at the opening of the exhibition were taken and transformed into digital depictions of shamanic initiation rites, mostly an image-morphing technique. The process of morphing the person with

his or her mirror image is also a symbol of self-absorption, typical of shamanic initiations. The results were 15 digital images of the invisible made visible, presented as a web-based installation.

In *\*The Truth and Life of Myth: An Essay in Essential Autobiography,\** Robert Duncan describes the myth-teller muttering against his willful lips a story that forces his telling. Duncan describes the shaman, who takes the universe to be alive, as a mystic and a paranoiac; a totally informed being whose world is a world of meanings. In *\*Ethermorph,\** the shaman is archetype for the wired man in the electronic age, perhaps the man whose central nervous system, as Marshall McLuhan offers in his *\*Agenbite of Outwit,\** is extended across the globe. The idolatry of technology, the enchantment without intellection, renders a psychic numbness, unless we acquire the powers of the shaman, the psychotic, the healer of ancient societies, to reveal to us, as in the words of McLuhan, "ways of living with new technology without destroying earlier forms and achievements."

I see this today as a kind of new humanism, as pointed out by David Cave in *\*Mircea Eliade's Vision for a New Humanism.\** The "modern" person, Cave holds, when informed by exemplary models and archetypes, will constitute a modern culture of a plural, universal, holistic and cosmic presence in the world. Social fragmentation and individual alienation are too often seen in tow with our advancing technologies, with our dazzling graphic displays, such that only through a syncretist mythological basis can we bring about the structure and meaning we seek in our highly mediated and fractured world.

#### Archetypes for a Wired Humanity

The electronic age has given us tools by which information can be visualized in a variety of ways that make sense to us. These tools act as bridges between disciplines that seem completely unrelated. Thus, the accessibility of our technologies opens the potential for cross-disciplinary work in the arts more than ever before.

In a new media project entitled *\*Geocentricity: The Earth as Center,\** seven Filipino artists engaged with the geological sciences and new media technologies. *\*Geocentricity\** was commissioned and hosted by *\*fineArt forum\** and is now being exhibited part of the Leonardo Gallery. In the web-based exhibition, the artists presented 13 visions of earth phenomena and island folklore, interpreting their visions using scientific and cultural data. Meeting with scientists at the Philippine Institute of Volcanology and Seismology provided both art and science practitioners a cross-examination of the various methodologies required in the completion of the project. Laboratory-type experiments that visualize and predict natural phenomena serve as the ground for discovery, creativity, synthesis, representation and the apprehension of invisible or inaccessible phenomena. In such experiments, the art-science relationship becomes obvious.

As the most seemingly disparate disciplines continue to melt into each other via the transcoding of information in new media, we need to turn to mythological thinking if we are to approach these developments with imaginal receptivity. For instance, in the design of electronic interfaces or the construction of web-based installations, my interest is in how access to reality is conducted when sensible form and immaterial nuances are addressed

by new media. Alternatively, we can approach this, as stated by Ananda Coomaraswamy, by "seeing in things material and sensible a formal likeness to spiritual prototypes of which the senses can give no direct report." In *\*The Door in the Sky,\** Coomaraswamy holds that the practice of an art is not traditionally a secular activity nor a matter of affective "inspiration," but rather a metaphysical rite. Thus, as he draws no distance between art and contemplation, "it is not only the first images that are formally of superhuman origin." Further, Coomaraswamy defines the judgement of an image as a contemplation "and as such [the image] can only be consummated in an assimilation. A transformation of our nature is required."

As mythical constructs immediately generate their opposites, this transformation through assimilation may be seen in the archetype of the "divided child." In Philippine Ifugao culture, there is a myth that speaks of this "divided child," the offspring of parents from heaven and earth. When the day finally comes for this child, named Ovug, to return to the skyworld, the people of the earth refuse to give up the child. And so the child's father, the god Dumagid, takes a knife and divides the child into equal parts - one part for the heavens and the other for the earth. Both parts receive new life, thus accounting for lightning in the sky and thunder rolling across the earth - this magnificent light and sound display is the orchestration of the divided child.

This is the myth and tradition by which I see the process of collaboration and the role of the artist as a cross-disciplinary and cross-cultural worker - as Ovug, the divided child. There is a critical metempsychosis, the splitting and transmigration of souls, in Ovug, as he is conceived from both sky and earth and is split bodily into two separate beings. Similarly, in the artist's movement from individual to collaborator, the identity is divided and whatever constitutes a personality is transfigured or relinquished. Furthermore, both entities must, like thunder and lightning, act as a single symposium of light and sound.

For the 2002 Philippine Digital Media Festival, I invited visual artists Noell Farol and Roberto Feleo to collaborate on an archaeology-new-media installation entitled *\*Artifact Reassembly.\** We thought of the new media and archaeology link with the view that as human cognition is inferred from lithic industries, human evolution became linked with cultural and technological evolution in what is seen as a biocultural feedback system. In a highly mediated and numbing culture, it becomes more challenging to develop sensitivity to what accounts for stability and patterns of change in society. This situation is true to the complex narrative of the myth of the divided child, which does not begin and end in a mere "sever and multiply" affair. For instance, on his first return to the skyworld, Dumagid was forced to bring along his wife, Dugai, and leave their child as security for their return. It meant to surrender Ovug and to sacrifice Dugai, as no human can bear the path to the skyworld. Creative collaboration can also be so goal-blind as to make that uncalculated risk, consuming the Eros and exigency in the creative process; cross-study in the arts may mean threading unfamiliar terrain and a surrender of inherited powers. In "resurrecting Dugai" through *\*Artifact Reassembly,\** we found that we needed to be acutely aware of foreign mass-media bombardment and be selective of the influences that we use in the installation - both the corporeal and the incorporeal. A kind of mythical thinking allows for a critical re-contextualization and informed analysis in the creative use of new media.

## The Turn to the Power of Myth

The myth of the divided child is not a single bolt of lightning or clap of thunder, not a game or story that ends in the sky. As Claude Levi-Strauss said in *\*The Story of Lynx,\** we should not think that myths can only offer us already-played-out-games. Myths are untiring; they begin a new game each time they are retold or read, enacted or seen. Through the "primitive" eyes of myth, there is more than logic or tradition along which art is daily creating new meanings, more than parallels to modern technological breakthroughs, or synthetic philosophical reflection.

Vannevar Bush's "As We May Think" was published in 1945, just after the Second World War, and it introduced a conceptual device - "Memex" - supposedly the first of what were called "pacific instruments," which American scientists claimed to be their primary objective upon emerging from their destructive work during the war. Today's "Memex," being thus modeled after "the way we think," has created an overwhelming world of new meanings and situations such that our discussions of them open altogether new didactic and epistemological problems.

In her book *\*Artful Science,\** Barbara Stafford paints an age of "automatic simulations and mechanized knack" in late twentieth-century developments; she paints a Western world's eclipse in visibility in the face of their orientalized technology. Here, Stafford calls for the need to re-associate visual technologies with common rituals and public concerns. I think this could be, more than a transit to the past, an inner turn to mythological thinking.

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#### ABOUT THE AUTHOR

Fatima Lasay is an artist, writer, researcher and assistant  
professor of new media art at the University of the Philippines  
College of Fine Arts. She obtained her BFA in Industrial Design  
and MFA at the University of the Philippines. In 1995, Lasay  
developed the digital media art courses for the Studio Arts and  
Visual Communications Departments of the UP College of Fine Arts.

Lasay's new media projects include \*Manipulation\* (2000, Galeri  
Situ, Manila), \*Geocentricity\* and \*Gimokud the Melting Soul\*  
(2001, on-line), \*Healing Cultures through Digital Art\* (2002,  
on-line) and the Digital Media Festival 2000-2002 (Corredor  
Gallery, Manila).

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LEONARDO DIGITAL REVIEWS 2002.12
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This month, Leonardo Digital Reviews returns to its normal format  
in \*Leonardo Electronic Almanac\* with a brief introduction to the  
postings this month. As the conference season starts, Robert  
Pepperell offers us his views on Creativity and Cognition 4:  
Processes and Artefacts - Art, Technology and Science, held at  
Loughborough University, in the U.K. In addition, he reviews  
\*Body and World,\* by Samuel Todes. He finds that this book,  
pitched at the specialist reader, offers a refreshing revision  
away from idealism towards a view of the subject as active in a  
body and a world.

Pepperell's final contribution this month is a reflection on What  
Is It To Be Human?, a debate presented by the Institute of Ideas  
at the Cheltenham Festival of Literature (Cheltenham, U.K.) and  
\*What Is It To Be Human? What Science Can and Cannot Tell Us,\* by  
Kenan Malik, a contribution he finds problematic - at least in as

far as the topic is announced in the title. Amy Ione reviews J rgen Weber's \*The Judgement of the Eye: The Metamorphoses of Geometry,\* finding it to be an outstanding contribution to the field of consciousness studies. It comes from an art/science position and, despite a significant omission, receives her recommendation.

Finally, Stefaan van Ryssen, a relative newcomer to the panel, offers a review of \*Designing Sociable Robots,\* by Cynthia L. Breazeal. Drawing on his own creative practice, van Ryssen acknowledges the contribution of the modeling of social robots not only to robotics, but also to the debates on sociability and consciousness.

These reviews, together with complete listings for September and October (which were glossed in the previous LEA/LDR "specials"), can be read at:  
<http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>, along with reviews for the last 12 months.

Michael Punt  
Editor-in-Chief  
Leonardo Digital Reviews

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Creativity and Cognition 4: Processes and Artefacts:  
Art, Technology and Science (conference)  
Reviewed by Robert Pepperell

Body and World, by Samuel Todes  
Reviewed by Robert Pepperell

What Is It To Be Human? (debate) and What Is It To Be Human?  
What Science Can and Cannot Tell Us, by Kenan Malik.  
Reviewed by Robert Pepperell

The Judgement of the Eye: The Metamorphoses of Geometry, by J rgen Weber  
Reviewed by Amy Ione

Designing Sociable Robots, by Cynthia L. Breazeal  
Reviewed by Stefaan Van Ryssen

City Gorged with Dreams: Surrealism and Documentary  
Photography in Interwar  
Paris, by Ian Walker  
Reviewed By Susan Taylor

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< What Is It To Be Human? >  
Debate presented by the Institute of Ideas at the Cheltenham  
Festival of Literature, Cheltenham, U.K., 11 October, 2002

and

< What Is It To Be Human? What Science Can and Cannot Tell Us >  
By Kenan Malik,  
London, Academy of Ideas, 2001.  
ISBN: 1-904025-00-5, trade, 53 pp.

Reviewed by Robert Pepperell,  
[pepperell@ntlworld.com](mailto:pepperell@ntlworld.com)



This panel discussion, chaired by Tony Gilland of the London-based Institute of Ideas, brought together four writers to discuss aspects of the question, "What is it to be human?" — the same question that titles a collection of essays published by the Institute in 2001. The publicity blurb for the event couched the question of our indeterminate humanity in terms of genetic science and posthumanism, and the various panel members responded, at least initially, by addressing our biological nature.

Steve Jones, the eminent geneticist and author of *\*The Language of Genes,\** pointed out with his usual good humor that it was not useful to define humans in terms of their genetic makeup. Besides the fact that humans and mice both have approximately 30,000 genes, we share 40 percent of our genes with bananas. Launching an immediate attack on the discipline of sociobiology, which understands current human behavior as a consequence of our evolutionary past, he dismissed the enterprise as "the ponderous affirmation of the bleedin' obvious". At best, he pointed out, sociobiology is able to tell us that older men are often attracted to younger women; at worst, it introduces the concept of "duck rape" to account for certain sexual behavior among ducks. In fact, he went on, biology, and genetics in particular, can tell us very little about what it is to be human, concluding "what makes us humans is that we are not animals."

Sue Blackmore, author of *\*The Meme Machine,\** addressed the question of what makes humans unique by reaffirming her thesis of imitation. For her, what defines us is our "copying machinery;" that is, our capacity to imitate the behavior of others, which allows behavioral practices to spread amongst communities or species. As is well-known, she regards such imitative behavior in memetic terms, as quasi-evolutionary replicating units, following the introduction of the concept by Richard Dawkins. Humans, she said, are unique in being able to harbor and spread memes, and our complex social organizations are a consequence. She then went on to expound the other thesis for which she is well-known, the "illusion of self," which follows from the ideas of Daniel Dennett. For Blackmore, the idea that we have a specific, centralized sense of our own existence, or even a consciousness, is a delusion, partly caused by our acquisition of memes. These delusions do not mean, she went on when challenged later, that we do not have a self or a conscious life, but simply that these things are "not what they seem". She concluded with the admission that she is "utterly baffled" by what it means to be human.

Kenan Malik, who wrote *\*Man, Beast and Zombie,\** as well as making the main contribution the *\*What Is It To Be Human?\** book, offered a more humanitarian and philosophical view. He rejected what he saw as the recent conceptual shift that stresses the continuities between humans and the natural world. He argued that the rejection of the idea of humans as something special made for bad science and bad politics. Humans, he maintained, are in the special position of being able to make moral decisions; in effect we are "self-conscious moral agents." Further, we are uniquely subjects and objects who can shape our own destiny. If we follow the pessimism inherent in "anti-humanism" (by which he may have meant posthumanism), we will lose many of the valuable social impulses that drive progressive science and politics.

Novelist Maggie Gee disagreed with Steve Jones' assertion that we are not animals. Gee was keen to insist on the primacy of our animal nature, and was then led to ask, "What is the nature of the human animal?" For her, humans are "intelligent, dexterous

and dangerous." We are inherently dissatisfied with the limitations of our physical bodies, and this causes us, with our capacity for intelligence, to act on the world so as to make lasting changes. She characterized the human condition as an ongoing and ever-repeating banana-skin joke - we are always tripping up. She pointed to the vulnerability of humankind, saying that we are apt to get things wrong and make mistakes on a global scale. We specialize in "mad, blinkered obsessions," the example of U.S. policy of pre-emptive self-defense being, in her view, a case of "mad reason."

During questions from the audience, Sue Blackmore's memetic ideas came under scrutiny, not least because they imply a lack of personal responsibility if, as she claims, we are just "replicating machines" in which memes largely determine our behavior. Steve Jones offered the most authoritative and damning indictment of the memetic thesis, at the same time pursuing one of his "few remaining pleasures" - that of "annoying Richard Dawkins." He cited an occasion when he looked up the term "meme" on the Google search engine. Perhaps unsurprisingly, there were a large number of hits. But when he did an equivalent search on the Web of Science, the global index of scientific papers, it revealed just 37 hits, of which only two referred directly to the "biological meme" theory.

"What Is It To Be Human?" was one in a series of debates staged by the Institute of Ideas in response to the eponymous publication, which includes contributions from Matt Ridley, Kevin Warwick, Maggie Gee, and Anthony O'Hear. A previous event at Institute of Education in London, called "A Posthuman Future," featured Francis Fukuyama and Gregory Stock discussing the implications of Fukuyama's recent publication of a similar title, "Our Posthuman Future." But despite the event's title, and the publicity blurb for the event in Cheltenham, there was virtually no mention of the word "posthuman" from the panel members, the chair or the audience at either debate. One suspects that, regrettably, posthumanism is possibly being employed by some as a sexy promotional tag without much serious consideration of its ramifications. I, for one, regret this appropriation, and hope that posthumanism will not be reduced to a general anxiety about one aspect of biological research.

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< The Judgement of the Eye: The Metamorphoses of Geometry >

by J rgen Weber

Springer Wein, New York, 2002. 200 pp., illus.

Trade, \$29.95 / Eur 29.00. ISBN: 3-211-83768-X.

Review by Amy Ione

ione@diatrobe.com

Of the many books that have recently explored relationships among art, perception and geometry, J rgen Weber's book, \*Judgement of the Eye: The Metamorphoses of Geometry,\* stands out among them. In this recently published work, Weber effectively brings his background in science together with his life as a sculptor, painter and art educator. The book acquaints the reader with the extensive research program that evolved as he studied a number of questions of interest to him. As he explains at the beginning, the book is "essentially about what forms say to us, what information they convey about their very existence, how we understand their language. How does their expression come about?"

To its credit, the book offers a good survey of visual perception and an adequate sense of how one might balance art, neurophysiology and perceptual psychology. Weber has obviously studied a number of areas related to vision and art and the way he uses several neurological case studies in the beginning of the book to set the stage for his inquiry into expression and perception is most impressive. He also clearly presents gestalt ("form") psychology and the work of a number of gestalt psychologists, surveying the work of figures such as K hler, Koffka and Arnheim to convey the history and distinctions of this movement. As he explains, these psychologists were the first to state that geometric forms played a decisive role in visual perception and recognition. Weber's efforts to relate gestalt psychology to the Lie Transformation theory, however, are a bit hard to follow. Nonetheless, he does convey that this second movement followed a completely different path: essentially, those who worked with the Lie Theory of continual transformation groups (e.g., Hoffman, Dodwell) attempted to relate the simple geometrical forms produced by the visual cortex with environmental phenomena.

Perhaps Weber's greatest contribution to the work of the gestalt psychologists and Lie theorists is the experiments he conducted with his students. Some mentioned in this book include asking students to respond to basic shapes and drawings, to reproduce from memory as well as identification, and to perform tasks that include 2-D, 3-D, and rotated shapes and surfaces. Weber, moreover, does not restrict his work to static shapes. He also asks about movement and how Euclidean forms might undergo a geometric metamorphosis. This allows him to compare historical art and traditions, such as Egyptian and Greek art.

Several aspects of this book, however, undermine its effectiveness. Although much of the discussion encourages the reader to look closely and thus aids perceptual understanding, the format of the book works against it. The carefully chosen images effectively illustrate ideas about shape, memory, how we see and how art is made. Yet it is difficult to interrelate the text and images, due to the book's structure of relegating the images to a separate section at the back. The 83 pages of 501 primarily black-and-white images could easily have been integrated into the body of the text. In my opinion, the decision to print these images separately makes them difficult to use, particularly since each page contains six to eight pictures of various shapes and sizes. Indeed, the need to keep turning pages to locate the appropriate images is distracting and, about halfway into the book, I found I had lost patience when I needed to search through a page full of images to find the number mentioned in the text. I would have also liked a longer index and a more extensive bibliography. Hoffman, for example, is mentioned frequently throughout the book, but I failed to find a single text by him listed in the bibliography.

In summary, Weber impressively brings his work as an artist and art educator together with a number of disciplines outside his field. Asking how we see, why we do not see what appears on the retina, and how we see additional information such as the mood contained within a facial expression (among other things), Weber effectively asks good, important, questions about perception. He ably succeeds in aiding the reader to look closely at what is seen. The book, as a result, is successful in extending scientific theories into the world of practice and expression.

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< Designing Sociable Robots >

by Cynthia L. Breazeal,  
Bradford Books, MIT Press, Cambridge MA, 2002. 263 pp.,  
illus. (includes CD-ROM). Trade, \$49.95. ISBN: 0-262-02510-8.

Reviewed by Stefaan Van Ryssen  
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The field of robotics began to come of age in the last decade of the twentieth century, with the creation of highly specialized machines that perform all kinds of tasks in very different and sometimes hazardous environments: from roving the surface of a nearby planet to cleaning the endless corridors of hospitals, from replacing the hand of a surgeon to keeping lonely children happy. In fiction, movies, science-fiction and comics, robots have outshone human protagonists: who does not remember HAL 2000 in Stanley Kubrick's masterpiece, \*2001: A Space Odyssey\*, Commander Data in \*Star Trek, The Next Generation\*, Asimov's helpful and sometimes troubled robots or \*Star Wars'\* R2D2 and C-3PO? Yet, there remains a big gap between our imagination and the machines that are actually built. It is not hard to see where the difficulty is: the robots around us are slow learners, bad communicators, only responsive in a limited way and by no means empathic. They can be smart and skilful, but they are just no good to go out with or to chat with about the weather, soccer or the pains of growing up.

Cynthia L. Breazeal, Assistant Professor of Media Arts and Sciences at the MIT Media Lab, has taken a first step towards building a robot that understands what we say and mean, communicates and interacts with us, learns and grows along the way and might eventually become more of an assistant and a companion. It is a first step, but a very important one. In this very well-written and clearly structured book, she defines the key components of social intelligence for these machines. Drawing from a very wide range of sciences - from psychology to linguistics, from engineering to artificial intelligence - she has actually built a robot that acts and communicates at levels of complexity of a human infant. "Call me Kismet," it might say - and you might be delighted to see it smile, turn its head away if you come too close or angrily snarl at you when you offer it a toy instead of your face to look at.

Breazeal originally wanted to build a learning robot as much as a social robot, but she soon realized that the machine should have an interface that allows humans to monitor its learning processes. To make encouraging actions meaningful, the human tutor should get an almost instantaneous response expressing the positive result of the action. Learning, it seems, is a regulatory process for both participants. Building on the results of developmental psychology and human-computer interaction, Breazeal chose to tackle the communication and interaction levels first, before fully concentrating on the learning capabilities of the robot.

\*Designing Sociable Robots\* is much more than an endearing description of a toy: the author gives detailed descriptions of the physical robot, the vision system, auditory, motivation and behavior systems, the facial animation and expression space and the expressive vocalization system. Each chapter clearly states the problem and underlying theoretical principles and explains how the features are implemented, down to the level of the actual

equations and parameters used.

In a final chapter, Breazeal sums up the "Grand Challenges of Building Sociable Robots." Among them are the problems of how to endow sociable robots with a rich personality, how to give them the ability to reflect upon themselves, how to design them so they can learn in very different and unpredictable social situations and many more.

Having once designed an interactive improvising computer and a "moody" software program myself, I can fully appreciate the complexity of the challenge to build a machine that shows the full range of emotions and interactions of an infant. Kismet and its siblings still have a long way to go, certainly as far as learning and understanding are concerned. But one thing is clear: if we really want to understand what it means to be a social being, a conscious being and an active being, building sociable and interactive robots is one of the most promising paths.

You actually have to see Kismet to get an idea of its power and life-like quality. Go to:  
[www.ai.mit.edu/projects/humanoid-robotics-group/kismet/kismet.html](http://www.ai.mit.edu/projects/humanoid-robotics-group/kismet/kismet.html).

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Note: The following review was submitted directly to LEA, not to Leonardo Digital Reviews, and thus is not actually a part of LDR. However, we felt that it would compliment this month's LDR reviews and have therefore included it here. - Ed.

#### < International Festival of Experimental Arts >

Mange Hall, St.Petersburg, Russia, 21-25 August 2002 Reviewed by  
Mikhail S. Zalivadny, Russia Conservatory, St. Petersburg, Russia

This year marked the fourth annual International Festival of Experimental Arts and Performance in St. Petersburg. In comparison to previous festivals, the festival appeared very modest, both in terms of time (4 1/2 days) and space (it was almost entirely on the ground floor of the Hall building). It was (seemingly, at least) also "quiet" with respect to ingenuity, without any daring innovations or striking indications of eccentricity. Nevertheless, many exhibits and performances were certainly noteworthy, owing to the more central role of electronic technologies in conceiving and implementing the works.

The festival program included a number of works of notable artistic quality, including an interactive video installation (with characteristic "droning" and "wailing" electronic sounds); \*The Lost Souls,\* by Vassily Tsereteli (Russia), dedicated to the memory of the victims of the 11 September, 2001 attacks in the U.S.; the \*Nikikon,\* a "chaotic" object ensemble created by Niki Constantinou (Greece) and including "abstract" photos, flickering lights and a pleasant non-commercial pop-music kaleidoscope; a "blindfold volunteers theatre," under the direction of Luc Boisclair (Canada), with smell and touch components of action and video projections addressed to the spectators; an electro-acoustic performance given by Adrian Palka (Great Britain) and his assistants, during which various sounds of "steel music equipment" (a roof-iron plate and several barrels) were amplified and transformed by means of electronic and computer devices; a "fairy-tale cave" (made from theater and concert-hall materials) with flashing lights, electronic sounds and interactive pyrotechnical effects (authors: Andrey Melnik and

the Luzhaika [Grass-plot] group, Russia) and \*The Suprematic Meal,\* an installation by Russian artist Anna Kolehuk, with alternating geometrical figures inspired by the paintings of Kazimir Malevich.

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ISAST NEWS
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< Ed Payne elected to Leonardo/ISAST Board of Directors >

We are pleased to announce that Ed Payne has been elected to the Leonardo/ISAST Governing Board of Directors. Ed Payne is President and a co-founder of Albathion Software, Inc. In his work over the last 25 years as a senior executive, founder of three startups, consultant, and researcher, he has always been guided by a core principle -- the development of innovative technology that enhances the life of the end-user and the broader social needs of the community. He believes strongly in public service, and has done pro-bono work for a number of educational and environmental organizations including The Nature Conservancy, The Environmental Defense Fund, and The San Francisco Exploratorium. Payne has served on the boards of Liss Fain Dance (board chair), The San Francisco Children's Art Center (development chair), and Goddard College (exec, academic affairs chair, chair of presidential search).

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< New Leonardo/ISAST Assistant to the Board >

We are pleased to announce that the position of Assistant to the Board for LEONARDO/ISAST has been filled. Please join us in welcoming Melinda Klayman to the LEONARDO staff. Melinda comes to LEONARDO after a 6-month cyber-adventure in Singapore and brings with her considerable experience in the digital arts as well as in art curating. She previously served as Assistant to the Executive Director of the College Art Association in New York.

Melinda's cv is on-line at:

<http://melinda@klayperson.com/bio/mk%20resume.htm>

We look forward to working with Melinda as LEONARDO continues to move forward into the future!

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ANNOUNCEMENTS
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< LEA 2003: Open call for papers >

The Leonardo Electronic Almanac (ISSN No: 1071-4391) is inviting an open call for papers to be published in 2003. The LEA Editorial Board seeks proposals for:

\* Theoretical Discussions: \*Original\* essays documenting research, critical commentary in areas of discussion such as nanotechnology, cyberart, cyberfeminism, hypertext, robotics, bio-art, artificial life, genetics. This list is by no means exhaustive, and proposals need not be limited to these areas.

\* Artists Statements / Gallery Commissions: International artists are encouraged to submit statements or proposals for \*original\* for exhibiting new media artwork. Curators are welcome to propose thematic exhibitions.

LEA encourages international artists / academics / researchers / students to submit their proposal for consideration. We particularly encourage authors outside north america and europe to send proposals for articles.

Proposals should include:-

- a 150 - 300 word abstract / synopsis detailing subject matter - a brief bio (and prior works for reference).
- names of collaborators (if suggesting a thematic issue / curated gallery)
- any related URLs - contact details

Please send proposals or queries to:

Nisar Keshvani  
Editor-in-Chief  
Leonardo Electronic Almanac  
<http://mitpress2.mit.edu/e-journals/LEA>  
[lea@mitpress.mit.edu](mailto:lea@mitpress.mit.edu)

by 15 January 2003. (Pls note - Response to proposals may take upto 4 weeks)

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< Leonardo Book Series : Uncanny Networks by Geert Lovink & Virtual Art by Oliver Grau >

The Leonardo Book Series and MIT Press are pleased to announce the release of two new books: \*Uncanny Networks: Dialogues with the Virtual Intelligentsia,\* by Geert Lovink, and \*Virtual Art: From Illusion to Immersion,\* by Oliver Grau.

\*Uncanny Networks: Dialogues with the Virtual Intelligentsia\* by Geert Lovink

For Geert Lovink, interviews are imaginative texts that can help to create global, networked discourses not only among different professions but also among different cultures and social groups. Conducting interviews online, over a period of weeks or months, allows the participants to compose documents of depth and breadth, rather than simply snapshots of timely references.

The interviews collected in this book are with artists, critics and theorists who are intimately involved in building the content, interfaces and architectures of new media. The topics discussed include digital aesthetics, sound art, navigating deep audio space, European media philosophy, the Internet in Eastern Europe, the mixing of old and new in India, critical media studies in the Asia-Pacific region, Japanese techno tribes, hybrid identities, the storage of social movements, theory of the virtual class, virtual and urban spaces, corporate takeover of the Internet and the role of cyberspace in the rise of non-governmental organizations.

Interviewees include Norbert Bolz, Paulina Borsook, Luchezar Boyadjiev, Kuan-Hsing Chen, C"lin Dan, Mike Davis, Mark Dery, Kodwo Eshun, Susan George, Boris Groys, Frank Hartmann, Michael Heim, Dietmar Kamper, Zina Kaye, Tom Keenan, Arthur Kroker, Bruno Latour, Marita Liulia, Rafael Lozano-Hemmer, Peter Lunenfeld, Lev Manovich, Mongrel, Edi Muka, Jonathan Peizer, Saskia Sassen, Herbert Schiller, Gayatri Spivak, János Sugár, Ravi Sundaram, Toshiya Ueno, Tjebbe van Tijen, McKenzie Wark, Hartmut Winkler and Slavoj Žižek.

\*Virtual Art: From Illusion to Immersion\* by Oliver Grau

Although many people view virtual reality as a totally new phenomenon, it has its foundations in an unrecognized history of immersive images. Indeed, the search for illusionary visual space can be traced back to antiquity. In this book, Oliver Grau shows how virtual art fits into the art history of illusion and immersion. He describes the metamorphosis of the concepts of art and the image and relates those concepts to interactive art, interface design, agents, telepresence and image evolution. Grau retells art history as media history, helping us to understand the phenomenon of virtual reality beyond the hype.

Grau shows how each epoch has used the technical means available to produce maximum illusion. He discusses frescoes such as those in the Villa dei Misteri in Pompeii and the gardens of the Villa Livia near Prima porta, Renaissance and Baroque illusion spaces and panoramas, which were the most developed form of illusion achieved through traditional methods of painting and the mass-image medium before film. Through a detailed analysis of perhaps the most important German panorama, Anton von Werner's 1883 *The Battle of Sedan*, Grau shows how immersion produced emotional responses. He traces immersive cinema through Cinerama, Sensorama, Expanded Cinema, 3-D, Omnimax and IMAX, and the Head-Mounted Display with its military origins. He also examines those characteristics of virtual reality that distinguish it from earlier forms of illusionary art. His analysis draws on the work of contemporary artists and groups ART+COM, Maurice Benayoun, Charlotte Davies, Monika Fleischmann, Ken Goldberg, Agnes Hegedues, Eduardo Kac, Knowbotic Research, Laurent Mignonneau, Michael Naimark, Simon Penny, Daniela Plewe, Paul Sermon, Jeffrey Shaw, Karl Sims, Christa Sommerer and Wolfgang Strauss. Grau offers not just a history of illusionary space but also a theoretical framework for analyzing its phenomenologies, functions and strategies throughout history and into the future

Other books in the series:

\*Information Arts: Intersections of Art, Science, and Technology,\* by Steve Wilson  
\*The Language of New Media,\* by Lev Manovich  
\*Metal and Flesh: The Evolution of Man: Technology Takes Over,\* by Ollivier Dyens

For more detailed submission guidelines:  
<http://mitpress.mit.edu/authors/ms-submission.html>

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< OLATS NEWS 008 - 17/12/2002 >

This is the last Olats News of year 2002. The Leonardo/Olats team wishes you a Merry Christmas and a wonderful year 2003. See you next year !

1. DAVID BYRNE writes seriously about PLEASURE  
<http://www.leonardo.info/lmj>

Read David Byrne on northern european Blip Hop music and other composers in LEONARDO MUSIC JOURNAL special issue no 12. on the theme of PLEASURE. Orders from [journals-orders@mit.edu](mailto:journals-orders@mit.edu) for Table of Contents see <http://www.leonardo.info/lmj>. The accompanying CD features experimental music from EASTERN EUROPE curated by Christian Scheib and Susanna Niedermayr.

2. New on the Palatnik web site : the opening of a virtual gallery <http://www.olats.org/setF6.html>

Organized in a chronological way, the gallery holds circa 40 artworks, and shows the main phases of Palatnik's creation (from 1959 to 2002). Sketches reveal how the artist gave shape to his cinechromatic machines. A part from the gallery, visitors may now consult a monography of the artist gathering biographical information, an anthology of critical studies, bibliographic lists, and many other information about an artist who has been considered as one of the most important leaders in the Brazilian Kinetic art.

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