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LEONARDO

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For this issue of Leonardo Electronic Almanac we are featuring two long reviews from the February postings not least because they do what we do best: keeping track of events drawing on the first person expertise that exists in the world. Amy Ione, as many of you know, is an international lecturer, a painter, and a writer, and has long explored discovery, creativity, innovation, invention, and historical challenges in art and science. She maintains a constant flow of current events and debates through the Diatrope Institute <http://www.diatrope.com/> and is one of the long-standing contributors to the Leonardo Reviews Project.

Jonathan Zilberg, who is the author of the second featured review is a cultural anthropologist with field research and museum experience in Latin America, America, Europe, Africa and Asia. He specialises in art and religion. Since the early 1980s, he has been exploring religious symbolism in diverse art forms past and present in Central America, Africa and Southeast Asia. His current research is on the Indonesian reaction to the rise of Islamic fundamentalism and on the nexus of archaeology and fashion in Indonesia. His review of (Un)common Ground: Creative Encounters across Sectors and Disciplines is especially welcome since, as a study of cross-sector collaborations between the academic and commercial worlds, he is able to comment on it from the ground of his own field experience.

These and the rest of the reviews for February 2008 are at www.leonardo.info/ldr.html along with the archive of all the work of our review panel.

Michael Punt
Editor-in-Chief
Leonardo Reviews

< Take Your Time: Olafur Eliasson >
Curated by Madeleine Grynsztejn
San Francisco Museum of Modern Art Exhibition
Catalogue, edited by Madeleine Grynsztejn
Thames & Hudson, 2007
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After spending several afternoons with Take your time: Olafur Eliasson, engaging with light-filled kaleidoscopic environments, his free-standing sculpture, his series of wall-mounted photographic stills, and his reconfiguration of elements (e.g., moss, water, rock, etc.), it is clear that Eliasson's reputation as a seasoned and influential artist is well deserved. Words are not capable of replicating the real time sensory engagement with

the ordinary spaces that he transforms into sites of wonder. Indeed, it is even hard to say whether the results are art, science, architecture, play, or something else entirely. Fortunately, for those not yet acquainted with his work, the full-scale survey now on display at the San Francisco Museum of Modern Art (SFMOMA) will also travel to New York, Dallas, and Sydney, Australia (see below). Suffice to say that Take Your Time captures Eliasson's ability to promote an awareness of the conventions of seeing and stimulates a critical attitude toward the processes of perception as well. It is an effective space for displaying his distinctive energy, inviting the viewer's active participation, and raising perceptual questions. On display are the six fundamental aspects of his practice: a distinctive use of mirrors to displace the viewer's perception of both object and self; an exploration of light and optical phenomena via immersive environments that interact with the viewer for full effect; the use of kaleidoscopic elements to bring the outdoors into the gallery, merging nature with culture; a deep attention to and manipulation of landscape referents; a disposition toward scientific methods and materials, including the willful exposure of the creative process; and, finally, photographic suites of the Icelandic landscape.

Among the most tantalizing pieces in the show is the One-way Colour Tunnel (2007), a walk-through structure built on the Museum's thirty-eight-foot pedestrian sky bridge and visible from the atrium five stories below. Serving as one of two entrances to the show, (the other one is from off the elevator), this piece demonstrates how effectively the artist takes advantage of this museum's architectural features (much the way the Sol LeWitt exhibition at SFMOMA did several years ago). Saying that this work's position and visibility invites the viewer in, while accurate, would seem to underplay the degree to which each installation stimulates active participation. Constructed with stainless steel, color-effect acrylic, and acrylic mirrors, two aspects of the construction continued to fascinate me. One is that it evoked the kaleidoscopes I used as a child. These devices contained mirrors and colored objects, and when held to the light and turned, an evolving symmetrical pattern would emerge. Within the One-way Colour Tunnel, it is as if you have walked into a kaleidoscope. Ambient light seamlessly meshes with the object, and the pattern alters with your movement. This sensation of natural immersion feels more organic than computer-assisted virtual reality, although no less effective. The second aspect of this piece that fascinates me is its involvement with the light that surrounds the tunnel, much of which comes through the many windows at the museum. Each time I walked through the tunnel, I wondered how much the colors would change from day to day or even as the sun followed its course throughout the day.

Multiple Grotto (2004), an enchanting stainless steel piece owned by SFMOMA, also has perfect pitch. Here, too, the artwork is a dramatic extension beyond the tubular kaleidoscope that one holds. The cones that form this walk-in sculpture are based upon crystalline patterns found in nature. When standing within its core and gazing out through the myriad openings, the viewer sees the kaleidoscopic colors of the surrounding environment turned into a pattern that changes as other people travel around outside of the sculpture. From the outside, it is obvious that the open, outer ends of the cones have different shapes and angles, with some having three sides and others four. This influences the geometry of the patterned reflections that form on the mirrors, although I cannot comment specifically on how. What I can say is that the installation created a meditative feeling (in a sublime sense) without removing my cognitive impulse to know how it worked, although this comparison may sound like a self-contradiction.

More thought-provoking than meditative is The Model Room, a collection of

objects intended to provide a glimpse into Eliasson's creative process, (e.g., Möbius strips, mirrored geodesic domes, quasi-crystals made of foamcore and foil, kaleidoscopes, and intricate lattice shapes based on mathematical principles). These maquettes and mixed media models features the inquisitiveness that is at play in Eliasson's studio. Some of the catalogue essays mention that these studies are often unsuccessful explorations. Yet, overall they express a rigor that belies the sensual triggers within the art itself. His studio, it seems, serves as a laboratory for investigating diverse materials and forms and, within this space, he seems to balance the intuitive and mathematical sides of his mind. On the one hand, the clutter brings to mind the curiosity cabinets of earlier eras. But, on the other hand, when walking amid the experiments, it is evident that the predominantly geometrical shapes on display are strikingly different from his artistic installations. It is not just a question of the clutter versus the sparseness of the artistic enterprises. It is also that the mathematical inclination seemed to predominate. Thus, while said to represent a playful, creative side of his work, the objects do not suggest the kind of playfulness frequently associated with art. I can recall art instructors telling me long ago that you need to know the rules before you can break them. This is the comment that comes to mind when reflecting on The Model Room.

What also comes to mind in this studiolo is Eliasson's aspiration that his art should stimulate communication. Each time I visited the show I found myself engaging with strangers and friends as we discussed our perceptions and how all of the exhibits "worked." In The Model Room, however, I found that Eliasson himself was the person I wanted to communicate with about the various objects. Talking to others was simply speculative and no one else could say what his goal was with each model, or explain precisely how he expanded on what he learned when he moved his "exercises" into the art. (Similarly, when it seemed that one of the stills in The Domadalur Daylight Series [South] [2006] was out of order, I would have liked to ask him if this was the case. Unfortunately, I could not find this series reproduced in the catalogue.)

A short review cannot touch upon the variety of experiences available at the show. Much could be said about the mist and rainbow of Beauty (1993), the spectral panoramic within the 360° Room for All Colours (2002), the smell and texture of the Moss Wall (1994), and Remagine (2002), a room with spotlights that creates a moving illusion of distance and depth. All deserve more attention, as does the second Eliasson show at SFMOMA, Your Tempo (on view at SFMOMA until January 13, 2008), which features a work created as part of a long-running art car program sponsored by BMW. It is intended to focus our attention on the relation between car design and global warming. This exhibition also includes another suite of photographs and a short film focusing on a series of workshops in the artist's studio.

The large-format, high-quality catalogue that accompanies Take Your Time does a fine job in critically placing Eliasson's work and supplementing the display. Edited by Madeleine Grynsztejn, who also curated the show, this publication includes more than two hundred color reproductions and 6 essays that survey Eliasson's most significant works from 1990 to the present. Eliasson's conversation with Robert Irwin offers a glimpse into the practices of both artists. Enhanced by a photograph of them speaking and supplemented by reproductions of Irwin's work that make it easy to see their stylistic affinities, it alone is worth the price of the book. Several essays reference The Weather Project, exhibited at the Tate Museum from 2003-2004 and no doubt Eliasson's best-known work. Other tantalizing projects that I wish I could detail here are also brought into focus (e.g., Green River and Frost Activity). Several sections of photographs document his career to date. These

images are large enough to offer a sense of the work, with many angles and details offering further clarification. I was fascinated to see how malleable the installations are. For example, the dimensions of the rooms in the reproductions for the Moss Wall and the Room for One Colour as shown in the reproductions are clearly different from the rooms used at SFMOMA. Even from the printed visuals it was easy to imagine how my sense of the space would change had I experienced the alternative environments, where the rooms appeared larger and lower than the ones in the SFMOMA space. Many of the essays also integrate how Eliasson has been influenced by thinkers outside the art world who have commented on perceptual experience, (e.g., Merleau-Ponty, Bergson, Varela, etc.).

While exceptional in most respects, *Take Your Time* is not flawless. Some pieces, such as the site-specific *One-way Color Tunnel* (2007), complement the SFMOMA space well. At other times, I thought the overall layout had some drawbacks. I missed the 360° *Room for All Colours* (2002) room on my first visit, found it on the second walkthrough, and missed it the third time, to my amazement, because I had planned to show it to a companion during the visit. The layout also provides two points of entry, which seemed unusual to me after reading the catalogue. Grynsztejn, for example, writes in her essay that Eliasson often opens his exhibitions with a *Room for One Colour* (1997) to underline the productive operation of our perceptual qualities. If one takes the elevator, the show does indeed begin that way. However, taking the stairs brings one in through the *One-way Color Tunnel*, which I think is a better place to start. I entered both ways, on different days, and think the bridge offers a more striking entry point.

Also noteworthy is the degree to which this exhibition immediately brings to mind the Light and Space artists, James Turrell and Robert Irwin in particular. For example, the *Room for One Colour* (1997) reminded me of Turrell's Ganzfeld spaces, although Eliasson's work seems to have more conceptual affinities with Irwin's approach. Eliasson does distinguish himself from these older artists with his decision to expose the mechanical apparatus so that viewers can ponder how the pieces are contrived. *Notion Motion* (2005) shows his approach well. Visitors enter a darkened gallery with a floor of wooden planks and a gray floor-to-ceiling scrim. It quickly becomes apparent that stepping on some of the raised planks will change the wave pattern rippling on the scrim. Upon leaving this space one discovers that, behind the scrim, is the apparatus that pilots the display: a spotlight is focused on a large, shallow basin of water and the performative act creates the ripple effect on the water's surface that is projected onto the vertical scrim.

All in all, Eliasson's effectiveness stems from his ability to bring you into the created environment. *Take Your Time* does so admirably. After seeing the show several times, I concluded that the title, *Take Your Time*, which struck me as a bit clichéd initially, is an apt one. Each time I walked away from the exhibits, the magic of Eliasson's creations continued to linger and my reflections drew me back to the rewarding process of being with the work. Without a doubt, this show is a must-see for all people interested in the varied ways in which art, science, and natural phenomena converge to create extraordinary, multisensory experiences. Artists, art historians, vision scientists, philosophers, and general enthusiasts will, I believe, also find that the catalogue is a definitive and comprehensive resource.

Tour schedule: San Francisco Museum of Modern Art: September 8, 2007, to February 24, 2008. The Museum of Modern Art, New York, and P.S.1 Contemporary Art Center: April 20 to June 30, 2008. Dallas Museum of Art: November 9, 2008, to March 15, 2009. Museum of Contemporary Art, Sydney, Australia: summer 2009.

< (Un)common Ground: Creative Encounters across Sectors and Disciplines >
Edited by Cathy Brickwood, Bronac Ferran, David Garcia and Tim Putnam
BIS Publishers, Amsterdam, 2007
159 pp. Paper.
ISBN: 978-90-6369-166-0

Reviewed by Jonathan Zilberg
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(Un)common Ground: Creative Encounters across Sectors and Disciplines is an inspiring collection of reflective case studies of multi-dimensional cross-sector collaborations between the academic and commercial worlds, specifically in the context of a partnership between the Utrecht School of the Arts (HKU) and the media center Virtueel Platform, with support from Arts Council England. The book itself, written in the spirit of "radical pragmatism," emerged from a seminar for media experts at Amsterdam's Cross Media Week in 2006. Its aim is to investigate the dynamics of interdisciplinary practice and identify research methodologies so as to better understand how academic research and the creative industries involved in new media can engage in collaborations in mutually enriching ways. Above all, it is the intriguing notion of uncommon rather than common ground that make this such an intellectually interesting book, that is, in participatory challenges and in the contingencies, the incommensurability and the provisional relations through which knowledge emerges in interdisciplinary cross-sector collaborations.

True to the title, each chapter reveals how creativity emerges from uncommon ground and how inter-disciplinary projects that nurture this natural incommensurability can produce unintended creative consequences. One of the most interesting aspects of the study is how it self-reflectively documents the unfolding of its own creation. The way in which it does so not only provides a useful model for conceptualizing, organizing, managing and documenting such projects but a record of some interesting new ventures. For instance, in the realm of art education, a guild system has been revived to provide a transitional space for art students entering the market place. Other ventures can be found in the emergent fields of inclusive design and consumer driven innovation and in the use of inclusive design in the public sphere in grassroots creative communities, and much more. In addition, (Un)common Ground describes the emergence of tactical innovation media labs and lab culture as a service industry that can be combined with educational projects so as to provide a context for enabling generative and constructivist learning environments linking academia and industry. In short, no one interested in working in new media and cross sector inter-disciplinary collaborations can afford not to read this book.

That being said, the problematic aspect of this study lies in its underlying idealist sense that there is an irresolvable contradiction between creativity on the artist's part and control in industry, that is between the desire for uncontrolled expression and the power and need of the organizer to facilitate and control that expression for the purpose of the collaboration. Beyond that tension, the most interesting insights in this study have to do with how knowledge emerges in such contexts. Here it is Ann Galloway's fascinating conclusion, which stands out as remarkable. Galloway explores why we need to

closely examine the scars and seams that in effect structurally define these projects. As she relates, it is important to understand what gets cut, where, when and why, and of how knowledge comes to lie in the fold. Thus beyond the markedly brief case studies, it is Galloway's reflection combined with Trebor Scholz's reprinted article "The Participatory Challenge" from *Curating Immateriality* (2006) that provide the kind of intellectual labor that both intellectually oriented managers and artists will want to attend.

Some of these more theorized discussions are indeed surprisingly stimulating, surprising in terms of how, while they come across as intellectually playful, they are nevertheless rigorous and important for understanding new media and the changing nature of the world in the age of mass participation, or should we say potential mass participation. For instance, Charles Leadbeater introduces the notion of the beach ethic, drawing on the ordered and self-regulated behavior we experience on beaches without overt control. His insights into the profound shifts occurring in contemporary society make for fascinating reading. When read against the tensions expressed in the participatory and collaborative challenges as evident in the wide-ranging discussion of ownership, constraints and dissent in open and closed systems in Ferran's article, the fully collaborative intellectual nature of this project becomes particularly evident.

There are several interesting issues relating to collaborative projects that stand out in this study. Historically, the project is interesting because it documents the creation of a new artists' guild society in Holland, where such guilds first originated, but this time in the institutionalization of interdisciplinary cross-sectoral collaborations. In terms of team building, the project is interesting as these collaborations rely on bringing together individuals who have sufficient common ground in terms of their broad competencies and uncommon ground in their respective specialist depth. And yet, despite the claims for a unique productive nexus of professionalism and achievement of the aims of the interdisciplinary creative quest, stark contradictions and shortcomings emerge - indeed uncommon ground.

Two central assumptions of the study are questionable: the said rarity of successful collaborations and the importance of accepting anti-consensus over the importance of achieving consensus. Moreover, it is perhaps telling that after the collaborations, every artist stated that they would have been keen to accept a job with the companies they had worked with and yet in no instance did the companies make any such offers. The question then might be asked that if these type of collaborations were as successful as claimed, in terms of being innovative and economically productive, then why did industry not hire any of these artists with the mutual diplomatic caveat instead of allowing for the possibility of future such internships and collaborations?

What has been left unsaid here, what has been cut out to a large degree, is industry's perspective, wherein in fact lies the essential differences in the critical folding process. These are the questions that I am left with, especially considering how exceedingly scant the bibliographies are in terms of engaging the enormous literature on collaborations more generally. This is particularly revealing, perhaps, in that interdisciplinary cross-sectoral collaborations are highly productive when common ground and common aims are established to achieve specific ends. One is left wondering whether collaborations involving new media are so different from other forms of collaboration that the larger literature on collaboration could not have been bridged, abridged or - in the language of this study - folded in. Simply put, in the cutting and folding process, the whole history of collaboration in the arts, science, academia and industry has been left out of the equation.

Besides the challenge for more academically rigorous work, it is arguable on another level that the flaw in this study lies in the privileging of the anti-consensus model. Artists are herein being treated as gifted outsiders whose egos have to be protected in order to sustain the collaboration. Crudely put, they have to be tolerated for their potential creative input in a process in which the requirements of business to achieve particular types of products for specific ends are seen oppositionally as antithetical to the creative process. For instance, in the spirit of allowing for uncommon ground and an anti-consensus model the concerns of the managers are set aside in order not to dampen the artist's creativity. In these instances, as predicted by business, the results were indeed unsuccessful. It seems to me that there is a double standard at work in which the knowledge of the managers of the requirements of the market is not given equal standing as the need to pamper the artist. On the other hand, when one examines any successful creative industry, I would contend, that acute creative consensus and acceptance of the need to sometimes make difficult and contentious decisions is part of the process of creating any great work of art, product or project. It is surely this delicacy over avoiding rather than accepting conflict that weakens this project in its practical dimensions over and above the acceptance of the plurality of difference.

Indeed, in order to analyze and reflect upon this range of experience, an anthropologist, Samuelle Carson, was hired by Arts Council England to report upon the Interact Programme in which artists were placed in creative industrial contexts. In stark contrast to the other articles in this study, Carson emphasizes a great deal of common ground and how the real differences devolve upon ownership of intellectual property generated during such collaborations. In significantly furthering this discussion, Bronac Ferran provides a critical article on contracts, "Models of Ownership in Challenges of Contemporary Creativity," which highlights the 2006 Intellectual Property Summit: Codes and Creativity through drawing together comments by key figures in new media collaborations such as Roger Malina. In this domain, it is particularly interesting to read how contracts are seen as boundary objects that allow for security and common ground.

Ultimately perhaps, it is the dynamic between creativity and control that emerges as this study's contribution, an issue of substance to which Sholz and Galloway add powerful insight. However, all in all, considering that the seminar in Amsterdam (out of which this book emerged) was organized in the spirit of a radical pragmatism with the explicit goal of examining "what actually happens" in collaborations so as to dramatize differences, surely a more nuanced perspective on power and the irreducible difference between pure and applied creativity is required. In order for managers, educators and art and design professionals to engage in productive cross-sector collaborations, one has to achieve at least provisional common ground in order to create a successful product or manage a successful collaboration. And there not only should we nurture and accept friction as conflict zones in which decisions as to what to cut and how to fold inevitably have to be made but draw on the virtually galactic history of such experience both positive and negative.

For instance, perhaps the starkest contradiction in the inter-disciplinary era lies in the claim that while academic institutions are populated by the most creative, innovative and individualistic of people, these same institutions, in contrast to industry when required, show the greatest resistance to change. In some degree this is certainly the case in the sense that fully interdisciplinary work can only be done from the professional safety of a firm location within one's own discipline. In fact, as interdisciplinary work is deeply constrained by turf wars between and within disciplines, it might best

be seen as a zone of productive conflict akin to the folding process defining uncommon ground. While the struggle between cultural studies and anthropology is a particularly divisive example, when one considers the extraordinary vitality of the emergence of new cross-connecting sub-fields in biology, genetics and biochemistry, the vast productive nexus of university research and industry and the whole history of the industrial revolution and design, and the response to it in the Arts and Crafts Movement, never mind the penultimate example of Leonardo Da Vinci as an arts and scientist arms consultant, one has to wonder at the way in which this new Dutch guild assesses the assumed irresolvable differences between business and academia, arts and sciences, process and product. Perhaps the greatest value of better understanding uncommon ground then is that it provides us with a means to achieving more productive common ground.

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Special Section: Art Embodies A-Life: The VIDA Competition

< Art Embodies A-life: The VIDA Competition > by Nell Tenhaaf

Abstract: Artificial life artworks hold a unique place in the art world, one that has been largely mapped by the VIDA international competition through its annual recognition of outstanding works based on A-life. Works that have received awards since the VIDA competition began in 1999 (25 prize-winning artworks and 56 honorary mentions) have gained viewer appreciation and popularity at the same level as any other kind of art. Yet these works define a territory of their own, delineated here through characteristics of A-life art that arise from both the artist's studio and the research lab and that mark the 25 awarded artworks. Following this article, the Leonardo VIDA gallery presents a selection of eight prize-winning works that show the breadth of the competition to date; each is discussed here.

The VIDA gallery: Paula Gaetano; France Cadet; Federico Muelas; Scott Draves; Michelle Teran and Jeff Mann; Haruki Nishijima; María Verstappen and Erwin Driessens; Marc Böhlen and JT Rinker

Artist's Article

< Fractured Cybertales: Navigating the Feminine > by Juliet Davis

ABSTRACT: The author considers ways in which her interactive artworks "fracture" narratives relating to femininity and critique web-design conventions that often encode these narratives. In the process, she discusses how interactive media and electronic culture provide unique opportunities for exploring gender.

Special Section: Leonardo on Leonardo da Vinci

< Introduction: Leonardo and Leonardo da Vinci > by David Carrier

< Leonardo da Vinci and Perpetual Motion > by Allan A. Mills

ABSTRACT: Leonardo da Vinci illustrated several traditional forms of "perpetual-motion machine" in small pocket books now known as the Codex Forster. He was well aware that these designs, based on waterwheel/pump combinations, mechanical overbalancing hammers or rolling balls, would not--- and could not---work.

< L'Arte dei "Romori": Leonardine Devotion in Luigi Russolo's Oeuvre > by Luciano Chessa

ABSTRACT: The author has discerned a deep interest in the occult arts at the core of Luigi Russolo's Art of Noises. Such an interest is confirmed by Russolo's admiration for Leonardo da Vinci. Leonardo's writings on music and acoustics constituted in fact a scientific and spiritual paradigm for Russolo; the former's mechanical musical-instrument projects were important models for Russolo's own, from 1913's intonarumori to the nuovo strumento musicale a corde of 1931. Perhaps because of the futurists' ambivalent position toward the figure of Leonardo (proto-futurist or passatista), Russolo profusely quoted Leonardo but carefully avoided mentioning any borrowing.

< Leonardo, Nonlinearity and Integrated Systems > by Ian M. Clothier

ABSTRACT: In one of his lesser-known studies of flow, Leonardo da Vinci in 1513 came upon yet another question he could not answer: When blood hits the wall of the heart, does the flow split in two? In 1977, this question was answered by Albert Libchaber in an experiment that became a cornerstone of chaos theory. Can Leonardo's question, Libchaber's solution and notions of integrated systems be drawn together to create a whole? While this trajectory has its limitations, the journey has some rewards, taking in Leonardo's cosmology, chaos theory, poststructuralist philosophy, the Polynesian worldview, the Internet and the weather.

< The Proportional Consistency and Geometry of Leonardo's Giant Crossbow > by Matthew Landrus

ABSTRACT: The traditional scholarly appraisal of Leonardo's Giant Crossbow design dismisses it as a fanciful object, although often with praise of it as a quintessential example of his technical draftsmanship. The author offers evidence of Leonardo's likely intent that the drawing function as a reliable plan with which readers of a treatise on military engineering could consider a strategy, or an imaginative solution (a fantasia), for building the full-scale giant crossbow. At issue are the agreements between the illustrated dimensions and the written specifications, the proportional consistency of those dimensions and the possible use of Archimedean geometry to determine the primary dimensions.

Special Section: REFRESH! Conference Papers

< Introduction: The Reception and Rejection of Art and Technology: Exclusions and Revulsions > by Edward Shanken

< Gordon Pask: Cybernetic Polymath > by María Fernández

ABSTRACT: Despite his influence in art, architecture and theater, British cybernetician Gordon Pask is rarely acknowledged in histories of digital culture and virtually unknown in the history of art. Pask is better known as a theoretician than as an artist or designer, although his machines, artwork and theories were closely related. This article investigates the relevance of specific aspects of Pask's theories to his best-known artwork, *The Colloquy of Mobiles*, to illustrate his characteristic unification of science and art, and theory and material experimentation. Select works of contemporary art are discussed to indicate Pask's significance to contemporary art practices.

< From Technophilia to Technophobia: The Impact of the Vietnam War on the Reception of "Art and Technology" > by Anne Collins Goodyear

ABSTRACT: Using the Los Angeles County Museum of Art's 1971 exhibition "Art and Technology" as a case study, this essay examines a shift in attitude on the part of influential American artists and critics toward collaborations between art and technology from one of optimism in the mid-1960s to one of suspicion in the early 1970s. The Vietnam War dramatically undermined public confidence in the promise of new technology, linking it with corporate support of the war. Ultimately, the discrediting of industry-sponsored technology not only undermined the premises of the LACMA exhibition but also may have contributed to the demise of the larger "art and technology" movement in the United States.

< Vladimir Bonačič: Computer-Generated Works Made within Zagreb's New Tendencies Network (1961--1973) > by Darko Fritz

ABSTRACT: Scientist Vladimir Bonačič began his artistic career in 1968 under the auspices of the international New Tendencies movement (NT). From 1968 to 1971 Bonačič created a series of "dynamic objects"---interactive computer-generated light installations, five of which were set up in public spaces. The author shows the context of Bonačič's work within the Zagreb cultural environment dominated by the New Tendencies movement and network (1961--1973). The paper shows his theoretical and practical criticism of the use of randomness in computer-generated art and describes his working methods as combining the algebra of Galois fields and an anti-commercial approach with custom-made hardware. It seems that Bonačič's work fulfills and develops Matko Meštrovič's proposition that "in order to enrich that which is human, art must start to penetrate the extra-poetic and the extra-human."

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Leonardo Reviews

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LEONARDO NETWORK NEWS

< Leonardo Connects with Educators and Students >

As part of an ongoing effort to connect with the educational community, Leonardo/ISAST continues to promote several initiatives under the Leonardo Educators and Students Program. These include participation in conferences and events in the areas of art, science, technology and pedagogy through the Leonardo Education Forum, publication of Ph.D., MA and MFA thesis papers in the Leonardo Abstracts Service (LABS), job postings on the Leonardo International Faculty Alerts list (LIFA) and special discounts on student memberships. Students working in or interested in art, science and engineering are invited to join the Leonardo community with an annual associate membership to Leonardo/ISAST at the special student rate of \$50 (U.S.), \$53 (Canada) or \$83 (all other countries). Benefits include associate membership in the organization, discounts on books and invitations to join us at conferences and symposia, including the College Art Association Conference, SIGGRAPH, ISEA and others. Leonardo/ISAST is also interested in connecting with educational organizations and organizations with similar goals and interests through the Leonardo Organizational Membership Program, which was initiated in 2004 and continues to expand with new member organizations worldwide. Through the program, Leonardo/ISAST connects members of the Leonardo network and with organizations, faculty and students who are working at the confluence of art, science and technology. For more information about the Leonardo Educators and Students Program, visit: <leonardo.info/isast/educators.html>. For more information about student or organizational memberships, please visit the members page of Leonardo On-Line: <leonardo.info/members.html>.

< Leonardo Electronic Almanac Named Official Media Sponsor of ISEA 2008 >

We are pleased to announce that the Leonardo Electronic Almanac is the official media partner for the conference of the International Symposium on Electronic Art (ISEA) 2008, which is to be held in Singapore, 25 July to 3 August 2008. The conference will be held alongside workshops, courses, exhibitions, performances and other events over the duration of ISEA2008. The conference, as in previous ISEAs, is expected to bring together artists, theorists, historians, curators and researchers of media arts from around the world to jointly explore the most urgent and exciting questions in the field. The five themes of ISEA2008 (Locating Media, Wiki Wiki, Ludic Interfaces, Reality Jam and Border Transmission) are especially focused on eliciting a wide range of international scholars and artists.

< Leonardo Collaborates on Art and Climate Project >

In celebration of Leonardo's 40th anniversary, Leonardo is collaborating on a three-year project with Regional Cultural Centre Letterkenny. The collaboration, tied to the Leonardo/OLATS Pioneers & Pathbreakers Project and directed by Annick Bureaud, will include an exhibition coupling pioneers in art, science and technology with younger artists working in the same conceptual territories. In addition, the collaboration includes a three-year project, coordinated by the Leonardo Lovely Weather Art and Climate Working Group, which explores the ways in which artists and scientists are working together to address issues around global warming and climate change. The Leonardo co-sponsored YASMIN network initiated a discussion around the topic in November 2007 led by Janine Randerson. The thread is available on-line at <www.media.uoa.gr/yasmin/>. Leonardo seeks to document the works of artists, researchers and scholars involved in the exploration of weather and climate (change) and is soliciting texts for *Leonardo* and Leonardo Transactions, special issue proposals for the Leonardo Electronic Almanac and book proposals for the Leonardo Book Series. More information about the collaboration and how to submit material is available at: <www.leonardo.info/isast/spec.projects/lovelyweather.html>.

< Leonardo Book Series Enjoys Another Successful Year >

The Leonardo Book Series (LBS) continues to buzz with activity, with 6 new titles published in 2007 and many more in the pipeline. New titles in 2007 included: *Digital Performance*, by Steve Dixon; *MediaArHistories*, edited by Oliver Grau; *From Technological to Virtual Art*, by Frank Popper; *META/DATA*, by Mark Amerika; *Signs of Life*, edited by Eduardo Kac; and *The Hidden Sense*, by Crétien van Campen. In June 2007, the publication of Eduardo Kac's book *Signs of Life* was celebrated in Paris, France with a roundtable discussion between Kac, Frank Popper, Roger Malina and Annick Bureaud (as moderator), on the role and issues of publishing for new art forms. In July 2007 LBS authors Mark Amerika and Alex Galloway each gave keynote addresses at the Tate Modern in London for the "Disrupting Narratives" symposium. In November 2007 LBS Editor-in-Chief Sean Cubitt, LBS author/editor Oliver Grau (*MediaArHistories*) and LBS author Lev Manovich (*The Language of New Media*) participated in a telelecture, hosted by Danube University, titled "Remixing Cinema: Future and Past of Moving Images." The LBS continues to welcome new proposals by authors interested in publishing material in the converging realm of art, science and technology. Editorial guidelines are available on-line: <<http://leonardo.info/isast/leobooks.html>>.

< Discussion on Tenure in Art/Science/Technology Departments >

A discussion has been initiated on the Leonardo Education Forum (LEF) list about promotion and tenure for faculty in art/science/technology departments. See <artsci.ucla.edu/LEF/node/104>.

The discussion was initiated by LEF in response to a paper outlining criteria being developed at the University of Maine in the U.S.A. The paper, titled "New Criteria for New Media," authored by Joline Blais, Jon Ippolito and Owen Smith in collaboration with Steve Evans and Nate Stormer, is available on the LEF web site: <artsci.ucla.edu/LEF/node/95>.

LEF is interested in approaches by other universities for evaluating and

promoting young faculty in hybrid practices that may involve professional activity in both the arts and sciences or engineering, traditional scholarly publishing or new on line publishing mechanisms.

Leonardo Education Forum is focused on the professional interests of educators and young faculty as well as young professionals intending to enter teaching careers. To join the LEF discussion list, visit the LEF web site: <artsci.ucla.edu/LEF/>

2007--2008 Chairs: Eddie Shanken (Chair); Andrea Polli (Co-Chair), Nina Czegledy (Co-Chair), Victoria Vesna (Co-Chair)

2007/8 Graduate and Emerging Professional Chairs: Mariah Klaneski, Josh Levy, Justin Cone

< Smart Textiles: Science and Technology of Textile Art >

A number of articles have been published in *Leonardo* and *Leonardo Music Journal* on topics related to the textile arts. The Smart Textiles special project expands on *Leonardo*'s archive of textile art documentation by focusing on textile artists and scientists around the world who work with smart textiles or the new textiles science and technology.

The project is supported by the Marjorie Duckworth Malina Fund, which honors the memory of a key longtime supporter of *Leonardo*/ISAST. The project recognizes Marjorie's dedication to the ideals of international cooperation by emphasizing the participation of artists throughout the world.

Artists and researchers interested in writing about their work involving the science and technology of smart textile and clothing arts are invited to view the *Leonardo* Editorial Guidelines and related information at <leonardo.info/Authors> and send in a manuscript proposal to <**leonardomanuscripts@gmail.com**>.

A list of articles previously published in *Leonardo* and *LMJ* over the years is available on the *Leonardo* web site at: <www.leonardo.info/isast/journal/calls/smarttextiles_call.html>.

< Leonardo Day at UC Berkeley New Media Festival >

Leonardo/ISAST is pleased to host a day-long symposium on June 3, 2008, devoted to art, science and technology as part of the UC Berkeley New Media Festival in Berkeley, CA. The two-day academic conference will be augmented with digital art exhibitions, social events and campus events and is scheduled to occur immediately before the ZeroOne Festival in San Jose, CA. One day of the UC Berkeley festival will be hosted by the UC Berkeley Center for New Media and directed by Richard Rinehart (Digital Media Director & Adjunct Curator, Berkeley Art Museum University of California at Berkeley). The other day will be hosted by *Leonardo*/ISAST as part of the *Leonardo* 40th anniversary celebrations. The theme of Leonardo Day is "Remix: From Science to Art and Back in the Digital Age"; it will include presentations by Steve Wilson, Bronac Ferran, Jim Crutchfield, Chris Chafe, Michael Joaquin Grey, Laura Peticolas, Douglas Kahn, Ruth West, Gordan Wozniak and Wayne Lanier. More information about the event is available on the *Leonardo* web site: <www.leonardo.info>.

< In memoriam: Karlheinz Stockhausen > By Annick Bureaud

The German composer Karlheinz Stockhausen died 5 December 2007 at his home in Kürten (Germany). Unanimously regarded as one of the most important figures in contemporary music, Stockhausen composed a large number of works that have profoundly marked the second half of the 20th century. A pioneer of electronic music in Köln in the early 1950s, the inventor of the Momentform and a genuine visionary who was involved in numerous innovations, Stockhausen will be remembered for his unwavering desire to discover new aesthetic horizons.

In 2002, Bruno Bossis wrote a very detailed notice about Stockhausen---to which he very kindly contributed by providing information and images---in the framework of the Leonardo/Olats Pioneers & Pathbreakers project <www.olats.org/pionniers/pp/stockhausen/stockhausen.php>.

Leonardo would like to thank him again and pay homage to the great artist he has been.

< In memoriam: Dimitris Skoufis >

Dimitris Skoufis, the co-publisher, webmaster and member of the Board of Directors of the non-governmental organization Artopos <www.artopos.org>, is no longer with us. After an unequal battle with cancer, he passed away on the morning of Thursday, 22 November 2007. His early departure at the age of 54 bereaves his friends and colleagues of an impressive mind and a big heart. "Art in the Age of Biotechnological Revolution," a bilingual book-catalogue, subsidized by the I. Kostopoulos Foundation, to be published by Futura Publications, is dedicated to his memory. Dimitris Skoufis was an electrical engineer from the University of Patras who had struggled against the military Greek regime of the late 1960s and early 1970s. He was a multifaceted, talented person, a pioneer in Internet theory and practice and multilingual. Skoufis was a man of a concrete literary and philosophical background, a remarkable columnist for *ANTI* magazine and a gifted teacher at the Mass Media Studies Department of the University of Athens. He had been dearly loved by his students at the university and his professor Michalis Meimaris, as well as by his colleagues at Oracle, where he contributed as a localization consultant. His loss leaves a serious, irreplaceable gap, and all of us who cared for him are in mourning.

LEONARDO NETWORK NEWS COORDINATOR: Kathleen Quillian
kq [@] leonardo [dot] info

BYTES

< Rensselaer Polytechnic seeks Electronic Arts Department Head >

The School of Humanities and Social Sciences at Rensselaer Polytechnic seeks a prominent artist, writer or educator, in any area of electronic art or music, to lead an innovative electronic arts department. The candidate should have a proven teaching, professional and administrative track record. The spectrum of responsibilities for this position would range from teaching, to interfacing with EMPAC (the Experimental Media and Performing Arts Center) and the Institute, to mentoring and supporting faculty and staff. This position

requires a Ph.D., MFA, or other terminal degree. The candidate should be eligible for appointment at Associate or Full Professor rank with tenure.

The iEAR Studios (integrated Electronic Arts at Rensselaer) of the Department of the Arts at Rensselaer is dedicated to interdisciplinary creative research in electronic arts. As an art program situated within a technological university, it offers a uniquely creative environment for development and realization of innovative music and art, performance and interdisciplinary art works. The department's Ph.D. in Electronic Arts, MFA degree program, and thriving undergraduate programs (BS E-ARTS and EMAC) attract accomplished faculty and students. The department's iEAR Presents! is a longstanding public performance series. In fall 2008, Rensselaer will open EMPAC, which will become a major research center. Rensselaer is located in Troy, New York, in the vibrant and growing Capital District area, 150 miles north of New York City. Please see the impressive array of faculty, students and projects: <http://www.arts.rpi.edu>

To apply, send a resume, a cover letter describing your qualifications and interest in our program, and a sample of your work. Letter of recommendation may be requested after receipt of your application. Work samples may be in the form of scores, articles, books, videotapes, DVDs, CDs, websites, or other media. Applications will be considered beginning January 15, 2008, and will be accepted until the position is filled. Applications should be sent to: Igor Vamos, Chair, Faculty Search Committee, iEAR Studios, Arts Department, West Hall, Rensselaer Polytechnic Institute, 110 8th Street, Troy, NY 12180 USA tel: 518-276-4778, fax: 518-276-4370 email: vamosi@rpi.edu.

< Cleveland Institute of Art seeks Assistant/Associate Professor for Biomedical Art Department >

The Cleveland Institute of Art is accepting nominations and applications for a Biomedical Art faculty member in the Institute's Department of Biomedical Art. The Department is committed to providing the student with a solid foundation in the basic natural and medical science, new media theory, and applied and fine art intersections of Art, Science, and Technology. Students develop conceptual and technical skills in traditional and digitally integrated media.

The curriculum emphasizes: research & knowledge, levels of accuracy and visual communication, values of concept development and educational media, information design and theory, problem solving & critical thinking, cumulative technical skills and proficiency, innovative integration of both digital 2D/3D media and interactivity, and strong professional and presentation/oratory skills. The importance of collaborations, interdisciplinary research, and professional projects are integral to curricular goals and objectives. The Department of Biomedical Art supports a BFA program of study.

The Cleveland Institute of Art is seeking a qualified individual to help expand the current department faculty and fill a full-time ranked Assistant/Associate Professor position with a focus on natural science art, media theory, and technology.

Qualifications: Minimum of Masters degree from accredited university or college of arts, sciences, and/or technology; record of professional activity, exhibitions, lectures, and published work; administrative & leadership skills are essential; quality driven & experienced in project management, and strong

ability to communicate within an interdisciplinary environment; teaching experience at an institution of higher learning preferred; ability to convey technical & conceptual information at different levels for students; good organizational skills in both written and verbal lectures, research, and broad communications; flexibility in communication style for different majors and faculty collaborations; strong research and knowledge in natural sciences, art, media, and technology; demonstrated technical proficiency in digital media with an emphasis on: 2D image development, knowledge of 3D imaging and integration into time-based media, web & interactive media, and aptitude to learn innovative technologies; a demonstrated knowledge in visual problem solving, research methods, science, art, and new media theory, technology, and professional experience in both client-driven and fine-art-driven fields.

The Cleveland Institute of Art is a comprehensive school of art and design located in Cleveland's culturally rich district of University Circle. As one of sixteen majors, the Department of Biomedical Art has developed strong curricular collaborations across the Institute's departments and with surrounding institutions such as academics at Case Western Reserve University in Departments of Biology, Anatomy, Cognitive Science, etc. The ability to work with clinicians and professional medical illustrators at the Cleveland Clinic (an internationally known hospital and research facility) is also possible. The available resources of the immediate institutions are significant and range from superlative collections of the Cleveland Museum of Art, the Cleveland Museum of Natural History with a collection of skeletons of 3,000 humans and 1,000 primates, and the Cleveland Botanical Gardens, to the Allen Medical Library with a broad medical rare book collection that includes early editions of Vesalius and Albinus.

All full-time ranked faculty members participate in departmental and school-wide committees, curriculum development, advising of students, and assessment of programs.

Applications should include: curriculum vitae; portfolio of professional work (CD-ROM, DVD, & website); No more than 20 examples demonstrating a broad depth of media & skills; statement of philosophy on teaching; vision statement as to the future direction of art, science, technology, and the education of students involved in the contemporary evolution of the field of biomedical art (formerly medical and scientific illustration, as it is nationally recognized); examples of student work (if applicable); names and contact information of 3 references; SASE for return of materials.

Please mail all application materials: Biomedical Art Search, Attn: Tanya Lee Shadle, The Cleveland Institute of Art, 11141 East Boulevard, Cleveland, OH 44106

Position begins August 2008. The department's review of candidates' credentials is scheduled to begin January 15, 2008 and will continue until the position is filled. Incomplete applications will not be reviewed. The Institute offers a competitive salary and comprehensive benefits package. Academic transcripts and background check authorizations will be required for finalists. Rank and compensation are commensurate with experience and qualifications.

For further information please contact Tanya Lee Shadle at tshadle@cia.edu.

The Cleveland Institute of Art is an affirmative action/equal opportunity employer. Visit our website at www.cia.edu

< Cleveland Institute of Art Seeks Full-Time Faculty Design Theorist >

The Cleveland Institute of Art seeks qualified applicants for a full-time faculty position as Design Theorist at the undergraduate and graduate levels. Candidates should have extensive knowledge of current approaches to theory as integral to culture and society. A primary emphasis will be on an interdisciplinary engagement of production; global politics; ethics; semantics and semiotics; and convergent media. The successful candidate will be engaged in program and curriculum development. Opportunities exist for innovative collaboration and joint program development with neighboring institutions such as Case Western Reserve University. Position begins July 2008.

Qualifications: Ph.D. is preferred in one of the following: physics; mathematics; philosophy; cognitive science; technology studies; media studies; information studies; design; or other appropriate field. Applicants should show evidence of professional activity and demonstrate promise of contributing to curricular development at both the undergraduate and graduate levels. The successful candidate will have the opportunity to teach in the Liberal Arts and Studio areas.

Position Requirements: Participation in school-wide committees and assessment of programs is required by full-time ranked faculty members.

Review of credentials will begin January 10, 2008. Interested candidates must submit letter of interest summarizing qualifications and teaching philosophy; CV; sample syllabi; and 3 letters of reference to: Design Theorist Search Committee, Attn: Tanya Lee Shadle, The Cleveland Institute of Art, 11141 East Blvd., Cleveland, Ohio 44106-1710, tshadle@gate.cia.edu

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Application packet will be sent to the final candidates along with request for academic transcripts.

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