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Craig Harris, Executive Editor

LEA 8-6 CONTENTS

In LEA Volume 8 Number 6 we are pleased to be implementing the first installment of Louise Poissant's Media Arts Dictionary Project. This project has been in development for several years, and it is great to be launching it for LEA readers. In addition, this month we feature Victoria Vesna's perspective "Towards a Third Culture | Being in Between." Our Feature Profile offers a look at the International Society for Mathematical and Computational Aesthetics.

Makepeace Tsao, a longtime friend and supporter of Leonardo/ISAST and the arts community, has passed away. We will certainly miss him.

< The Media Arts Dictionary Project > by Louise Poissant

Louise Poissant Groupe de Recherche en arts mediatiques (GRAM) Department d'arts plastiques, Universite du Quebec a Montreal C.P. 8888, Succ. Centre-Ville Montreal (Quebec), H3C 3P8, Canada E-mail: <poissant.louise@uqam.ca> URL: <http://mitpress.mit.edu/e-journals/LEA/NMD/nmdhome.html>

The Media Arts Dictionary project was born out of the desire to name and define the many and varied forms of art that have developed in conjunction with technology. A whole lexicon is being created to describe the many processes, techniques, instruments, critical and aesthetic concepts---in short, the entire emerging culture---of this immense laboratory workshop.

The original electronic version of this dictionary (in French) contains about 2,000 entries, illustrations, examples of works, references and comments from artists and experts <http://www.comm.uqam.ca/GRAM/Accueil.html>. English translations of selected dictionary entries can be found at the following Web site: <http://mitpress.mit.edu/e-journals/LEA/NMD/nmdhome.html>.

In several issues of the journal, Leonardo will publish excerpts from the dictionary, grouped by subject matter or field. The terms selected for this installment are definitions of various art forms related to new media. The terms and definitions have thus far been chosen by the Groupe de recherche en arts mediatiques (GRAM); however, interested artists and researchers are invited to submit additions and comments to Section Editor Louise Poissant. These contributions will be added to the electronic version of the dictionary, with credit given to the authors. In this way, the dictionary project will gradually become a collective project in which all significant contributions will find a place.

... [Content omitted: Ed.] ...

[Ed. note: the complete content of this article is available at the LEA website: <http://mitpress.mit.edu/e-journals/LEA/>.]

< Towards a Third Culture | Being in Between > by Victoria Vesna

Practice must always be founded on sound theory. -Leonardo Da Vinci

Artists working with computer and other technologies that are a product of the scientific world are also informed and inspired by the exciting innovations and discoveries taking place in science. We are keenly interested in what the cultural critics and commentators from the humanities have to say on the meaning and impact these discoveries and innovations have on culture and society. Scientists can relate and understand our work easier primarily because we use the same tools-computers. Because our work and tools are in constant flux, we are forced to articulate the reasoning and meaning informing the art produced, which has traditionally been the role of art critics and historians. This creates room for an active dialogue with both humanists and scientists. Thus we are placed in between these "Two Cultures," which creates a triangle and promises to an emergence of a Third Culture. This is a privileged and dangerous position, at least in this transitional stage. Therefore it is important to take a look at the background and current status of these Two Cultures.

The Ghost of CP Snow persists

Much of the discussion concerning the triangle of art, science, and technology can be traced back to CP Snow's famous annual Rede lecture at Cambridge on May 7th, 1959. The phrase 'Two Cultures' entered into a cultural controversy and debate that has endured remarkably long. The title of Lord Snow's lecture was "The Two Cultures and the Scientific Revolution." He identified the two cultures as the literary intellectuals and the natural sciences, and he pointed to the curricula of schools and universities as the source of the problem.

In the second edition of The Two Cultures, in 1963, Snow added a new essay, "The Two Cultures: A Second Look." In that essay he suggested that a new "Third Culture" would emerge and close the gap between literary intellectuals and scientists. (Snow, 1963, pg. 53) It is significant to note that Snow originally named his lecture "The Rich and the Poor" and intended this to be the centre of his argument: "Before I wrote the lecture I thought of calling it 'The Rich and the Poor,' and I rather wish I hadn't changed my mind." (Snow, 1964, pg. 79) He remained dissatisfied with the Two Culture concept and had on several occasions tried to refine the claim. In his last public statement he makes clear that the larger global and economic issues remain central and urgent: "Peace. Food. No more people than the Earth can take. That is the cause." (Snow, 1968, pg. 220)

Art, Science and Technology: Building the Triangular Bridge

Scientist-artists originally conceived and designed bridges. The power-structure-behind-the-king, seeing great exploitability of the bridge for their own advantaging, accredited workers and materials to build bridges. (Fuller, 1981, pg. 27)

But it seems that there is still much work to be done in building the bridge between the humanities and the sciences. John Brockman, editor of a book of essays entitled The Third Culture, negates Snow's optimistic prediction that a day will come when literary intellectuals will communicate effectively with scientists. Instead he makes the claim that the contemporary scientists are the third culture and alludes that there is no need for trying to establish communication between scientists and literary intellectuals, who he calls the "middlemen." (Brockman, 1995, pg. 18) Although the choice of people in his book is significant, [1] the mere fact that it is comprised almost completely of Western white men, with the exception of Lynn Margolis with her essay "Gaia is a tough Bitch" makes it impossible to take his proposition seriously. But it does point to the continuing gap between the humanities and sciences and clearly shows that the bridge being constructed is still very fragile.

The bridge is triangulated and made into a more stable structure with the work of artists who are utilising new technologies and are in active dialogue with both sides. Artists using technology are uniquely positioned in the middle of the scientific and literary/philosophical communities, and we are allowed "poetic license," which gives us the freedom to reinforce the delicate bridge and indeed contribute to the creation of a new mutant third culture. By utilising tools familiar to scientists and collaborating with the scientific community, we are getting closer to an atmosphere of collaboration and mutual respect.

This road, however, is not without dangers of which to be wary. It is a delicate mission to be in between disciplines that are themselves in a tenuous relationship. Perhaps the greatest danger is for artists to look to the literary, philosophical, and theoretical circles for interpretations of scientific data and then further reinterpret their versions without checking back with the scientists. Much postmodern writing borders on linguistic play with mathematics and scientific terminology that serves to alienate the scientific community, which has used precise methods to arrive at those theories. This is not to say that one should blindly accept all products of the scientific community, but simply to suggest that any working relationship needs to be based on mutual respect and dialogue. The other danger that faces those 'in between' working on creating 'something else' is the general attitude of theory being above practice, prevalent in both humanities and sciences. At this stage, it is in the practice of art that the freedom lies to make assertions that are beyond the rational and beyond necessary methodology of proving a thesis. Practice informed by theory, utilising a methodology which makes it accessible to both worlds, is the key. Or, conversely, theory informed by practice.

Currently, much of this bridge-building work takes place in universities for more reason than one. First, at this point, with no market in place, it is impossible to make a living outside of academia and industry. Between the two, academia is generally friendlier to someone searching for a yet-to-be-defined path than industry, with its pressures to produce. Second, academia is a natural environment in which one can have access to good bandwidth and updated equipment. Third, and perhaps most important, academia allows artists contact with scholars from many disciplines. In order to function and communicate effectively in this context, one must learn the etiquette and language of various disciplines. The challenge, then, is to do this without losing the intuitive, 'wild' aspect, the practice, that taps into the silent, the unknown, the mysterious.

... [Content omitted: Ed.] ...

[Ed. note: the complete content of this article is available at the LEA website: <http://mitpress.mit.edu/e-journals/LEA/>.]

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PROFILES	

< Aesthetics - Mathematical and Computational >

International Society for Mathematical and Computational Aesthetics
Professor Michael Leyton
Rutgers Center for Cognitive Science
Email: <MLeyton@msn.com>
URL: <http://www.rci.rutgers.edu/~mleyton/ISMA.htm>

The Society is a division of the International Society for Group Theory in Cognitive Science URL: <http://www.rci.rutgers.edu/~mleyton/GT.htm>

The computational analysis of design is now a enormous discipline involving the interaction of high-level mathematics with advanced programming technologies. All design attempts to satisfy two constraints: functionality and aesthetics. Even a discipline as functionally oriented as structural engineering, in fact, involves aesthetic control over systems of non-linear equations. Aesthetics allows for (1) productive unification of perception, reasoning, and action, (2) understandability despite complexity, (3) generalization and re-usability, (4) axiomatic economy and principled prediction. Aesthetics is a major force in each of the following areas:

Computer-Aided Design and Manufacturing, Robot Motion Design: There has been considerable convergence in mathematics across the different types of CAD (e.g., in architecture and mechanical design), as well as manufacturing by shape-sculpting technology, and robot motion design. We note that Frank Gehry's Guggenheim museum at Bilbao was possible because James Glymph imported into architecture a major program designed by the French for aerospace engineering. The reason for the converging unity is that each of the several disciplines involves analysis of spatial systems of movement, control, and shape deformation - whose natural description is Lie algebras, tensor geometry with exterior differential calculus, and algebraic geometry.

Analysis of Artistic Masterpieces. Remarkable advances have been made in the mathematical and computational analysis of major artistic masterpieces - from the chorales of Bach, the piano sonatas of Beethoven, to the paintings of Picasso and Raphael, etc. Again, these analyses mainly involve Lie groups, Lie algebras, algebraic and differential geometry. Scientific Theory-Building and Reasoning: It has been well-recognized that aesthetic criteria play a powerful role in determining the design of theoretical models (e.g., irreducible representations of compact Lie algebras predicted the particle systems of quantum mechanics), as well as the dynamic equations of physics (e.g., Paul Dirac declared that the design of his relativistic electron equation was determined primarily by aesthetic criteria). The problem of insight in theory-building, problem-solving, and reasoning generally has been tackled with significant advances in AI - particularly in the problem-reformulation community, which is based strongly on the aesthetic supervision of discrete algebraic systems.

Software Design: It is clear that aesthetic criteria play a major role in determining software cohesion and decomposition, e.g., module decomposition in structured programming, object decomposition in object-oriented technology. Furthermore, it is apparent that there has been a remarkable interaction between the design of software and the software of design - and that this self-referring advance is driven by the need for aesthetic structuring of systems of computational operations.

The International Society for Mathematical and Computational Aesthetics is concerned with any design object, whether it be the machine-sculpted surface of a car body, the Beethoven Hammerklavier sonata, the Feynman propagator in quantum electrodynamics, or re-usable software. We are concerned with advanced research in four directions: (1) how the design decision-flow is controlled by aesthetics; (2) what structural aspects of a design object are taken to be aesthetic; (3) how aesthetic value is computed by the designer and user; and (4) how aesthetics is integrated with function in the design object.

The board members of this society are internationally known for their extensive and highly-developed research on these issues. This research includes, for example, analysis of large-scale integration in aircraft design; comprehensive analyses of symphonies and paintings; grammars for design (e.g., in architecture, structural engineering, computer programming, manufacturing); classification systems for ethnic artifacts; problem reformulation in AI; aesthetically powerful models in astrophysics; systematizations of mathematical crystallography and their application to design; cohomological unification in quantum mechanics, etc.

... [Content omitted: Ed.] ...

[Ed. note: the complete content of this profile is available at the LEA website: <http://mitpress.mit.edu/e-journals/LEA/>.]

LEONARDO DIGITAL REVIEWS | 2000.06 |

Editor-in Chief: Michael Punt Executive Editor: Roger Malina Managing Editor: Bryony Dalefield Web Editor: Sudhira Hay

Please visit the LDR website for this month's reviews.

Michael Punt Editor in Chief Leonardo Digital Reviews <http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>

Visit Leonardo Digital Reviews online to read these reviews in full together with the latest postings in LDR Raw as they come in. <http://mitpress.mit.edu/e-journals/Leonardo/ldr.html> Your comments are welcome at <kasberry@humanorigins.org>

< Florida State University School of Music >

Send resume and 3 reference letters with letter of application to:

Jon R. Piersol Dean Composition Search School of Music Florida State University Tallahassee, FL 32306-1180

Deadline: November 1, 2000 - Applications considered upon receipt.

Invitation for applications, appointment effective August 2001.

Position: Composer with expertise in electro-acoustic composition.

Salary/rank: Tenure-track position; rank and salary commensurate with qualifications and experience.

Responsibilities: Responsibilities will include individual instruction in composition; courses and seminars in electro-acoustic music; and leadership in the development and administration of an important new center for electro-acoustic composition, performance, and research.

Qualifications: Doctorate preferred; teaching experience in composition and electronic music; active research and composition profile.

Institution: The Florida State University is a comprehensive research institution of 16 colleges and schools with 1,600 faculty serving a student body of 35,000. The School of Music, with 80 faculty and over 1,000 students, offers a wide range of professional degrees in music, baccalaureate through doctorate including the B.M., M.M., and D.M. in Composition, and the B.M., M.M., and Ph.D. in Theory.

The University is situated in Tallahassee, Florida's beautiful, wooded capital city, with an area population of over 240,000. Located in the "Big Bend" area of northern Florida, Tallahassee enjoys a mild change of season, and proximity to the Gulf of Mexico.

Florida State University is an equal opportunity/affirmative action employer.



< Makepeace Tsao obituary >

To: Leonardo Colleagues From: Roger Malina

I regret to inform you that long time Leonardo friend and Honorary Editor Dr. Makepeace Tsao passed away last weekend. Makepeace was a biochemist and painter. He helped move Leonardo to San Francisco in 1982 at a time when our future was in doubt and worked actively on the Editorial Board since then. In 1995 he generously donated funds to Leonardo/ISAST for the Leonardo Tsao Prize which was awarded to Herve Fischer and Ginette Major the organisers of Images du Future in Canada. We will miss Makepeace.

If you wish to convey messages to the family you may contact Aimee Tsao at <matsao@pacbell.net>.

< Letter to the Editor >

To the Editor:

In regard to Joseph Nechvatal's provocative review, "Fontana Articulates Cyber-Space in 1947" (LEA 8(4) April 2000), it may be of prurient interest to know the incident that inspired Fontana to create holes, "buchis," in his canvases.

URL: <http://mitpress.mit.edu/e-journals/LEA/ARTICLES/fontana.html>

Perhaps I have been privy to this information because of my acquaintance with Franco Assetto, an artist from Turin, now diseased. Assetto told me that on one of his many trips through France with Fontana they needed a place to stay the night. Near by was a familiar a whore house where they knew the Madame and so shared a room there. Apparently Fontana had a difficult time going to sleep and while tossing and turning noticed in the far corner a pin hole of a light shining through the wall. He awakened Assetto and both investigated what was not an apparition but a door with a peep hole for voyeuristic purposes. It was then that Fontana excitedly proclaimed that "that was it!" From then on he would make such holes through his canvases. And so the buchis were invented!

Sonya Rapoport
Email: <rapop@socrates.berkeley.edu>
URL: <http://www.lanminds.com/local/sr/srapoport.html>

Media Contact: Robin Florzak: 312-362-8592

Students who dream of becoming computer game developers, digital graphics designers or technical directors in the entertainment industry can gain the skills they need from DePaul University's new computer graphics and animation undergraduate degree program. DePaul's School of Computer Science, Telecommunications and Information Systems (CTI) in Chicago will begin offering courses for the new bachelor's degree in the fall.

The new program responds to the increasing demand for computer graphics and animation specialists by the entertainment industry, government agencies, business and manufacturing, said Professor Rosalee Wolfe, director of CTI's division of computer graphics and human computer interaction.

"Computer graphics has experienced explosive growth during the past 10 years," she said. "It has expanded beyond its traditional roots in computer-aided design and flight simulation to embrace gaming, desktop and Web publishing, interactive digital media and visual effects. This growth is creating a ferocious demand for the rare employee who is fluent in both art and technology."

The 48-course program will include studies in mathematics, art, computer graphics and computer science, including courses in animation, plug-in development and games development.

Students who earn the new degree have a wide range of career choices, Wolfe said. "The American public bought 200 million computer games in 1999 and is expected to buy 25 percent more this year, creating new jobs in computer game design," she noted. "New positions also are emerging with the advent of feature-length, completely digitally animated films, the Internet, e-commerce and digital publishing. In addition, increasing numbers of businesses need people to create digital simulations and visualizations of products before the first physical prototype is manufactured."

The computer graphics and animation undergraduate degree program is one of three new degrees CTI will launch in the fall. The others are a bachelor's degree in network technologies and a bachelor's degree in electronic commerce.

Expanded from a department to a school in 1995, CTI offers practical, cutting-edge information technology education through graduate and undergraduate degree programs and professional training. CTI enrolls more than 1,300 undergraduates and 1,800 master's level students. CTI's overall enrollment has increased approximately 25 percent each year, the fastest growth among DePaul's eight schools and colleges.

For further submission information and the application form, please
see
URL: <http://www.telefonica.es/fat/vida3>

For questions concerning eligibility of entries: Nell Tenhaaf, Artistic Director Email: <tenhaaf@yorku.ca>

All other inquiries: Ana Parga Email: <fat@telefonica.es>

LIFE 3.0 International Competition - Call for Participation

This is a call for submission of art works to the second edition of an international competition on "art and artificial life." We are looking for works in electronic and digital media that cross over with the field of a-life research. Artists whose work uses digital synthesis techniques and whose conceptual concerns are related to synthetic life and artificial evolution, are invited to submit their pieces. The work

may employ techniques such as digital genetics, autonomous robotics, recursive chaotic algorithms, knowbots, computer viruses, avatars, evolving behaviours or virtual ecosystems.

An international jury (Daniel Canogar, Joe Faith, Machiko Kusahara, Rafael Lozano-Hemmer, Sally Jane Norman and Nell Tenhaaf) will grant three cash awards, with a first prize of US \$5,000 (2nd Prize: \$3,500 - 3rd Prize: \$1,500), plus seven honorary mentions to the most innovative electronic art projects related to a-life. Furthermore, works that are awarded a monetary prize or selected for an honorary mention will be included in a "Best of LIFE 3.0" video which will be aired on specialty television programs and circulated at festivals worldwide. Assessment will be based on video documentation submitted along with an application form. The deadline for submission is Thursday September 28, 2000.

The Life 3.0 International Competition is sponsored by the Fundacion Telefonica in Madrid, Spain.

< MTAC 2001 - Multidisciplinary Digital-Media Conference >

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Details : <http://www.mtac.uci.edu>
See "Titles" page for examples of last year's papers.

MTAC 2001 - Multidisciplinary Digital-Media Conference

February 8-10, University of California at Irvine.

CALL FOR PAPERS - to both Scientists and Artists

500-word Abstract of proposed conference presentation - by September 15th Paper detailing above - by Dec 15th.

Presentation of Paper (or demo described in the Paper) - at conference.

This year we are deliberately moving the conference sharply towards Artists - so as to rapidly balance our Artist-Science mix.

Artists are particularly invited to present innovative demonstrations using or concerning Digital Media.

< Telepresence - Art - Telepistemology Publication $\ >$

Dear Colleagues, dear Friends,

I'm happy to report that our new book is out now.

Please find information at:

<http://mitpress.mit.edu/telepistemology > Dr. Oliver Grau Kunsthistorisches Seminar Humboldt University Berlin Dorotheenstr. 28; 10099 Berlin Tel: +49 (0)30 2093-4295 (direct) Tel: +49 (0)30 2093-4288 (Secr) Fax: +49 (0)30 2093-4209 Email: <Oliver.Grau@culture.hu-berlin.de> URL: <http://www.arthist.hu-berlin.de/arthistd/mitarbli/og/og.html> "The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet" Edited by Ken Goldberg, UC Berkeley _____ Table of Contents _____ 1. Introduction: The Unique Phenomenon of a Distance Ken Goldberg, UC Berkeley, Engineering 2. Eden by Wire: Webcameras and the Telepresent Landscape Thomas J. Campanella, MIT School of Architecture and Planning Philosophy 3. Telepistemology : Descartes' Last Stand Hubert Dreyfus, UC Berkeley, Philosophy 4. Vicariousness and Authenticity Catherine Wilson, U. Alberta, Philosophy 5. Information, Nearness, and Farness Albert Borgmann, U. Montana, Philosophy Acting at a Distance and Knowing from Afar: Agency and Knowledge 6. on the Internet Jeff Malpas, U. Tasmania, Philosophy 7. Telerobotic Knowledge: A Reliabilist Approach Alvin Goldman, U. Arizona, Philosophy Art, History, and Critical Theory 8. The Speed of Light and Virtualized Reality Martin Jay, UC Berkeley, History 9. To Lie and to Act: Cinema and Telepresence Lev Manovich, UCSD, Visual Arts Department Dialogical Telepresence and Net Ecology 10. Eduardo Kac, The School of the Art Institute of Chicago 11. Presence, Absence, and Knowledge in Telerobotic Art Machiko Kusahara, Kobe University 12. Exposure Time, the Aura, and Telerobotics Marina Grzinic, Slovenian Academy of Science and Art The History of Telepresence: Automata, Illusion, and The 13. Rejection of the Body Oliver Grau, Humboldt-University Berlin, Art History Engineering, Interface, and System Design 14. Feeling is Believing: A History of Telerobotics Blake Hannaford, U. Washington, Electrical Engineering 15. Tele-Embodiment and Shattered Presence: Reconstructing the Body for Online Interaction

John Canny and Eric Paulos, UC Berkeley, Computer Science

16. Being Real: Questions of Tele-Identity Judith Donath, MIT Media Lab

17. Telepistemology, Mediation, and the Design of Transparent Interfaces Michael Idinopulos, UC Berkeley, Philosophy

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< OLATS News - Virtual Africa >

1 - The "Natural Order of Things" by Colette Gaiter:

URL:

<http://www.olats.org/africa/afriqueContinents/natural_order.shtml>

The "Natural Order of Things" by Colette Gaiter is a "personal meditation on South African and U.S. society and culture after spending two weeks in South Africa in August of 1999." Colette Gaiter, an African American artist, explores the social and cultural differences that separate people who like her have assimilated the values from the Western world, and people from Africa who are still connected to their ancestral culture. (Text in English)

2 - The Last Paintings of Luis Meque by Chiedza Musengezi

URL: <http://www.olats.org/africa/galerie/gal meque.shtml>

Chiedza Musengezi reviews an exhibition of works by Luis Meque organized in 1998 to commemorate the life and art work of a painter who actively contributed to Zimbabwean artistic life. His last paintings, characterized by predominantly dark colours and an expressionist style, find their inspiration in urban scenes, in portraits of marginal people and misfits. They also reveal Luis Meque's daily struggle with illness and death. (Text in English)

3 - In the "Arts and Sciences" Section

URL: <http://www.olats.org/africa/artsSciences/rossie_toys_en.shtml>

Jean Pierre Rossie's presentation of his recent book: "Toys, Culture and Society. An Anthropological Approach with Reference to North Africa and Sahara" Jean-Pierre Rossie is a Social-Cultural Anthropologist and Staff Member of Nordic Center for Research on Toys and Educational Media (University of Halmstad, Sweden). For several years, he has been working on the social representation and significance of toys in North Africa. (Text in French and in English)

ACKNOWLEDGMENTS |

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