



Leonardo Electronic Almanac

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INTRODUCTION
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< This Issue >

Craig Harris

This month LEA presents a double issue, containing an impressive collection of material. Ken Rinaldo provides us with another installment of the A-Life topical thread. We are republishing Ken's call for works this month, and invite artists, scientists, researchers and historians working in aspects of artificial life to send in proposals for publication of their work. In Living Sculpture - The Art and Science of Creating Robotic Life, Yves AMU Klein describes work integrating unusual technologies with his aesthetic sensibilities to create evolving sculptures that manifest learned behaviors dependent on their interactions with their environment and their viewers. Nell Tenhaaf presents As Art Is Lifelike - Evolution, Art, and the Readymade, an article that explores the early development and current concerns of artificial life practices in relation to both biology and art.

We also present an extensive profile of Synapse, a new Chicago-based network of artists who engage the neural network (human sensorium) with immersive and responsive art experiences. The profile includes their manifesto, artist biographical statements, and samples of their work.

Leonardo Digital Reviews contains four book reviews, as well as reviews of a CD-ROM, an Exhibition, and a web site. Finally, we have received several job opportunities, publication notices and event announcements that we want to bring to the attention of LEA readers.

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| FEATURE ARTICLE |  
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< As Art Is Lifelike: Evolution, Art, and the Readymade (excerpts) >  
Nell Tenhaaf

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Abstract  
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The early development and current concerns of artificial life practices are outlined in relation to both biology and art. The pragmatic side of a-life is presented, together with a consideration of how it compares with the biological sciences and a description of its methodologies for studying nature through computer simulation. A-life is proposed here as a place to locate art practice for artists who are interested in technoscience, and who are concerned with the 'two cultures' gap between the humanities and the sciences. Mythical narratives that underpin new computational techniques, such as the dream of transformation or even generation of life, are not dismissed but become the impetus for resituating a-life as a set of representational strategies with great creative potential. A-life is linked to a particular aspect of 20th century art: how artists have developed and expressed the conviction that art and everyday life are inextricably enmeshed.

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

[Ed. note: the complete content of this profile is available at the LEA website: <<http://mitpress.mit.edu/e-journals/LEA/>>.]  
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< Living Sculpture The Art and Science of Creating Robotic Life  
(excerpts) >

Yves AMU Klein

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Abstract  
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This article discusses the author's artwork. He describes his attempt to integrate unusual technologies with his aesthetic sensibilities to create evolving sculptures that manifest learned behaviors dependent on their interactions with their environment and their viewers. He describes past projects and recent works such as Octofungi and the Gene Genie software, as well as his goals for the future of what he calls "Living Sculpture."

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

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

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< Call for artworks, papers, research, historical perspectives, and pioneer profiles of: Artificial life artists, scientists, researchers and historians. >

Kenneth E. Rinaldo

Kenneth E. Rinaldo  
Emergent Systems  
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Call for artworks, papers, research, historical perspectives, and pioneer profiles of: Artificial life artists, scientists, researchers and historians.

Norbert Wiener who coined the phrase "Cybernetics" as the "study of control and communication in animals and machine." set the stage for mathematician John Von Neuman who put forth that the basis for life is information and its subsequent evolution. The idea for the Cellular automaton was born. Still, the study of natural form has been around as long as the Paleolithic pigment drawings of Bison in the caves of Lascaux in Southwest France or Leonardo Davinci's studies of bats for the development of flying machines, which looked to natural systems as model, and signal a change from formal study to process concerns.

In 1987 Christopher G. Langton convened the first conference on "Artificial Life" and almost immediately it set off a flurry of new experimentation with artificial life techniques. At the front end of creation artists and researchers are setting the stage for works that self organize, evolve and virtually make themselves. Artificial life could best be described as the discovery and implementation of evolutionary software strategies in dynamic association with computer hardware and other environments, for the creation of "life-like" behaviors and forms. This becomes a dynamic ever changing, evolving collaboration with the machine and it's mimetic manifestations.

Individuals working "in silico" with artificial life techniques in sculptural form, installation, screen based, virtual environments, musical works, and historical perspectives are asked to submit their papers and artworks. Works that include evolutionary algorithms, genetic programming, classifier systems, Lindenmeyer systems, cellular automata, neural networks, autonomous-agents subsumption architectures and new forms are especially requested.

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| PROFILE |  
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< Synapse Group of Chicago (excerpts) >  
Sabrina Raaf

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Synapse is an active network of artists who engage the neural network (human sensorium) with immersive and responsive art experiences. Synapse artists are proceduralists in that we carry out controlled research in kinetics, electronic circuitry, and visual psychology. In the biological context, 'synapse' refers to the 'point of contact between adjacent neurons, where nerve impulses are transmitted from one to the other. These impulses in the human brain - and in all life - are electric. Their rapid firing allows us to string together concepts and words into phrases.

Synapse, as internal electrical conduits, thus enable communication of ideas through threads of articulated utterances. Synapse embraces technological media through the concept of entropy. Not in the traditional sense where change and uncertainty in a closed system increases while available energy decreases, but instead where our culture has created an accelerated and deterministic entropy - planned obsolescence and rapid restructuring.

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

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

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LEONARDO DIGITAL REVIEWS AUGUST 1998
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< Book Review: Catalogue Raisonne >  
Catalogue Raisonne of Nicolas De Stael

Reviewed by: Harry Rand  
Email: <rand@nmah.si.edu>

Those unfamiliar with the work of Nicolas de Stael can hardly begin to appreciate the immense importance of the new edition of his catalogue raisonne. Because there already exists an earlier catalogue of his work it might seem unnecessary to produce a new updated volume when other modern artists lack even a preliminary inventory. Yet, this second attempt is useful and warranted while those who knew him are still alive to contribute first-hand corroboration and there remains

in living memory a fresh impression of his art, how it came into being and its inner coherence as an experimental venture. The novice will open this large book and view photographs of de Stael that show a tall gaunt and utterly arresting figure whose intent gaze back at the camera may well kindle wonder about this man so richly treated in over 1200 large pages with none-too-large print.

Primarily, readers unacquainted with Stael's career will have missed a keen aesthetic pleasure. No amount of text or the finest illustrations can substitute for, or begin to suggest, the understated power of this artist's vision and the mastery of his materials, a command of paint and color that derive from proficiency in the service of tradition and a grasp of contemporary thought. At least as important as the pleasure in viewing his art as the aggregate of individually successful pictures, is the deficiency that Stael's work requites in the history of modern art, a gap as theoretically important as it is daring in execution. In the sense that art of Nicolas de Stael responded to a perceived vacancy in art's dialectical progress, his work approaches the nature of scientific advance whereby questions can be proposed well ahead of their possible experimental solution. That is, his art could have been anticipated but no one had risked doing it, defying the urge for novelty and fashion.

De Stael's particular vocation could have been supposed from the evidence of earlier modernism, but no one had dared to live out his exacting response to destiny. The reason is simple: the taxing goals he had set for himself lay at the end of a treacherous and precarious journey. There was no guarantee that de Stael would succeed, as the history of modernism is strewn with failed ambitions; these usually are subtracted from the decorous and triumphalist narrative. There were aesthetic collapses and loses of nerve just as surely in the arts as in any other field, and often when dealing with the most highly refined sensibilities even the recovery from capitulation seems rewarding. So, when looking at the often politely gorgeous work of Kees van Dongen we can forget that he was once at the forefront of modernist advance. Likewise, reviewing the history of Cubism it seems impolite to notice that once, at the dawn of this century, Raoul Dufy stood shoulder-to-shoulder with Braque in exploring unknown territory and setting art's agenda. (What Dufy subsequently created is sufficiently rewarding that collectors seduced by his blithe subjects never question his apparent cheerfulness, while modernist critics never deign to consider the quotient of art that remains alive in his joyful work, paintings that seems too lighthearted to also be brainy.)

In America - abundantly provincial until the post-war era - frequently insipid iterations of the School of Paris circulated by Stuart Davis and others have been confused with genuine advances of the School of Paris made by a resident American like Alexander Calder. Only by understanding how modernist failure can be overlooked does it make sense to stress that complete novelty has nothing to do with modernist authenticity. Then it is possible to re-examine territory left fallow by past masters.

Note: This review has been excerpted here, please see the review in entirety at Leonardo Digital Reviews  
<<http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>>

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< CD-ROM Review: BEYOND >

Interactive CD-ROM Review: BEYOND  
By Zoe Beloff  
(USA) 1996

(This CD-ROM (format: Macintosh) was included in the 1997 Whitney

Biennial Exhibition, March -June 1997 and can be ordered from the artist's Website <<http://www.users.interport.net/~zoe/indexA.html>>  
Price: US\$20.00)

Reviewed by Michael Leggett  
Email: <[legart@ozemail.com.au](mailto:legart@ozemail.com.au)>

BEYOND enters the fin de siecle - that of the 20th century for the production of this interactive CD-ROM and the 19th century for its point of reference, for its sources. Both periods are characterized by rapid technological change directly affecting social intercourse.

The notion of discourse - the development of ideas and themes occurring as a series of responses which can be asynchronous and cyclical rather than following a singular and linear progression - can be closely mimicked by the modes of navigation made possible by interactive multimedia. 'BEYOND' uses the tool as metaphor for the navigation of aspects of late-19th century discourse. Centuries of inherited belief weakened by the then recent action of the Enlightenment were being challenged by new systems of knowledge.

Technology and more importantly, the corporate power this gave its owners, was claimed by detractors at that time as in our own, to be at the expense of the imagination and liberty itself. Beloff examines some of the swirls and eddies created by this process.

The wreck of a rural hospital in a site surrounded by leafless trees is the launching point for excursions into readings, (the sources of which are diligently listed in a thesis-like bibliographic section). Cross-overs to the contemporary world are not easy to come by but are accessible through both the familiar (Baudelaire) and the unfamiliar (the French psychiatrist Pierre Janet), and W. Benjamin, whose writings in this exploration delineate the edge closest to our own time. "And why Baudelaire? He was the first great writer of the modern city, the first modernist. It was he who first defined this idea of "mental geography" as a state of mind. The city shot through by allegory. He was the archetypal flaneur - while my work might be described as an exercise in digital flanerrie!"

The assembled texts, as performances, are accompanied by photographs and film of various goings-on in the living-rooms of the "experimentalists" of the time - seances, parapsychology, the paranormal, (evidenced in one memorable moment with the title "rare example of a nude ghost photograph"), pornography, dress-ups, trips and expeditions.

"I have been interested for some time in early serial films particularly those of Louis Feuillade (Les Vampires) - I love the way he made up the episodes of his serial films as he went along." Whilst the work is imbued with ideas of the time, Beloff draws parallels between multimedia and the then developing technology and aesthetic of cinema: "No one makes serials any more so I decided to make a serial and put it on the Web. It wasn't a literal narrative serial, it was just me, traveling in time and space, sending back reports each week, exploring the relationship between technology and imagination from around 1850 to 1940."

'BEYOND' commenced by using a tiny QuickCam camera feeding directly into the computer to make QuickTime movies which though of postage stamp dimensions were hungry for space on the hard disc. "It became so enormous that I transformed it into a CD-ROM. Everything was done "live", I projected the film, played the music and read the texts often all at the same time. I just spent the day starting from a rough idea, no notes or plans, setting things up in my house, trying things

out till something somehow worked. I love to throw myself into something and surprise myself. It was more like "casting a spell" than making a movie."

The artist records her interventions into the showing of the found footage by, for instance, suspending words on transparent material in front of the image. At other times Beloff appears whilst footage projects behind her as the narration proceeds. Objects are introduced to accompany the reciting of the words, completing the rich visual collage, accompanied by a sound mix of the recited quotes, (in a funny squashed declamatory voice), which drop names from the period like so many leaves in the virtual scene outside.

Music of the period, both symphonic and ensemble, complete the effect of synthesizing decaying, moldering and essentially private goings-on (at the bottom of the garden) in this deserted country hospital, which "resonate more with the imagination through atmospherics and a kind of moodiness", in the words of Judy Annear. "If Baudelaire and Benjamin might define the circumference of the circle, then the center I think of in the person of Raymond Roussel and his relationship with his doctor, Pierre Janet. It is Roussel's madness in the form of his novel Locus Solus that radiates outwards..... Written in 1914, Locus Solus simply recounts a tour of the estate of a famous Inventor Martial Canterel (who was modelled on Edison). One by one, bizarre mechanical inventions are described. Roussel's explanatory mania always goes beyond the fantastically detailed mechanical descriptions of moving parts, cogs and wheels."

To complete the encounter, (as we approach the end of this century), in the closing title shot the film is reversed and the Hindenberg rises from the ground again, extinguishing its flames and floating off to hover again, icon like, on the screen of the computer.

Footnotes:

1 Catalogue of the 15th World Wide Video Festival held in Amsterdam at the Stedelijk Museum in September 1997

2 Baltz, Lewis 1998, "BIENNALE DE L' IMAGE" at the Ecole nationale superieure des Beaux-Arts, Paris, May /July 1998

3 Catalogue of the 15th World Wide Video Festival held in Amsterdam at the Stedelijk Museum in September 1997

4 Annear, Judy; Biennial Exhibition review in Photofile No 51; ACP Sydney.

Acknowledgements:

A version of this review was first published in World Art Issue #18, July 1, 1998. Thanks to the editor of World Art, Ashley Crawford, for permission to reproduce the original text in Leonardo Digital Reviews. World Art is published by G+B Arts and distributed in the USA, Europe and Australasia.

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< Exhibition Review: Alternating Currents >

"Alternating Currents: American Art in the Age of Technology" San Jose Museum of Art - October 18, 1997 - October 18, 1998

Selections from the Permanent Collection of the Whitney Museum of American Art



Dialogue review by Sonya Rapoport and Barbara Lee Williams  
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"Alternating Currents," the third of five planned collaborations between San Jose Museum of Art and New York's Whitney Museum, contains nearly 60 artworks incorporating technology, arranged in three thematic groups: "Industry and Consequence," or art that is concerned with technology without being "high tech; "Challenging Perceptions," works exploring what Robert Irwin called "the shape of perception"; and "Message and Narrative," artworks that incorporate temporal elements.

Sonya Rapoport: Upon entering these ambient galleries, I experienced an almost religious calm in anticipation of vicariously recreating the birth of art and technology 'by the grace' of the venerable Whitney. However, my reverence soon dissolved into reevaluation as I found myself clicking "ON/OFF" rather than switching to "Alternating Currents."

Barbara Lee Williams: It seems that the main gallery of the show disappointed you! I admit the placement of [Claes] Oldenburg's giant undulating icebag front and center was more sentimental than stimulating. And I remain unimpressed by Tom Otterness's enormous bronze "The Tables," (1986-87) which scarcely lives up to the curatorial promise of "communicating the perils" of technology. But Lewis Baltz's installed photo sequence on suburban development is both provocative and very beautiful -- and, unlike the Otterness, lucidly addresses a post-industrial issue, specifically, the destruction of our natural environment.

SR: The Baltz is as elegant in its accordance as the Otterness is ugly in its discordance. However, Rauchenberg's "Autobiography" (1967), is a classic and wonderful "consequence" of "Industry." This print is an early experiment in advanced photo-lithograph processes; its subjective content is formally arranged in a vertical triptych of three circles, one above each other, representing Rauchenberg's astrological chart, his thumb print, and an obliquely opened umbrella from his performance piece "Pelican."

BLW: It is striking, especially the whimsical image of Rauschenberg in which he seems about to take flight. What did you think of the side galleries dedicated, respectively, to electronically altered perception, and technology in narrative?

SR: Next in thematic order is the gallery containing "Challenging Perceptions" in which light and space along with those "electronically altered" devices, play on our perceptions. Robert Irwin's seminal "No Title" (1966-67), a translucent disk with projected circles of light is certainly appropriate here but seems a bit tame. However, it becomes revitalized when perceived within the context of his latest installation of perceptually dissolving walls at the Dia Center. Flavin is also an appropriate choice, and his pastel grid of emanating fluorescent tubes that camouflage a corner of the room is a refreshing delight. And Ronald Mallory's box of pulsating mercury (from 1966-67) is unexpected, but fits quite well here. Do you wish to shed anymore "light" on this section?

BLW: It's true, some of the earlier works lack dynamism. But, as you note, the Flavin, executed in 1977, remains vibrant and ethereal, and James Turrell's "Shanta" from 1967 -- which projects xenon light to create a floating rectangle and thus transforms our perception of the small blue-grey room that holds it -- remains potent after three decades. I like the power Turrell's piece has over me: the glowing

form seems so tangible I have to resist the urge to cross the room and touch it.

SR: We are all intrigued by "magic."

BLW: But what did you think of Buky Schwartz's "Yellow Triangle" (1979)?

SR: I was struck by the early simplicity of this interactive format that shortly thereafter flooded the art media. Buky Schwartz managed to manipulate my perception of space as I watched myself disappear into the yellow triangle on the video screen while in actuality I was encompassed by its two-dimensional painting on the wall. Shigeo Kubota's "Meta-Marcel" (1976) also made a strong statement by replacing Duchamp's leather window panels with the TV screens depicting dense, colored, falling snow. Satisfied, I turned my back to get out of the winter storm and noticed the hands of Alan Rath's "Info Glut II" waving to me from across the next gallery.

BLW: These works, "Meta-Marcel," "Yellow Triangle," and even Irwin's "No Title," seem united in their straightforward celebration of technology in art. Schwartz teases us with technology; Irwin makes a dramatic, minimalist statement with it, while Kubota underlines technology's potential for beauty and delicacy (also, while Duchamp's piece seemed to close out the world; Kubota's is welcoming). The impression of the whole is dramatically different from the first gallery where various artists warned us of the dire consequences of technology. Now, you mention Rath's "Info Glut II" (1997) --an intriguing piece. Tell me what you thought.

SR: I was attracted by the gesticulating hands of Rath's "Info Glut II" that beckoned to me from the Message and Narrative Gallery. It is significant that I say "by the gesticulating hands of" rather than "into the gesticulating hands of" because something was stopping me here -- and during this visit I had been adjusting myself to accepting an earlier less interactive "state of the art" of art and technology. Then I realized that I subconsciously interpreted the raised hand as signaling to stop. "Info Glut II" is anthropomorphic work with a monitor head, wire arms, and video hands that are continuously speaking in sign language. The work intends to convey by title and by sign the superfluous information of this information age. Apparently the arcane message was communicated to me because I was stopped in my tracks. However, I found "Info Glut II" two-dimensional and static in spite of its electronic wizardry. In contrast, Kubota's severe snow storm was very three-dimensional and alive.

BLW: I agree that Rath's piece, while visually engaging, seems not fully realized. Given its subject, I expected noise of some sort to emanate from the bright red, constantly moving mouth. And perhaps this work suffers by its placement next to the two fascinating sculptures by Tony Oursler. Oursler's "Crying Doll, Flowered," (1993) and "Underwater Head," (1997) are stunningly effective syntheses of video projections, miscellaneous soft materials -- and sound! The two pocket-sized works are uncannily human (with just a touch of 'other') and the burbling sound is essential to their sense of life.

SR: Tony Oursler records live sound very effectively from actual incidences that are similar in emotion to what his sculptures convey. His work is both soft and tough in that it is right on the mark -- nothing extraneous. It touches you in a feminine way.

BLW: Originally this section was dominated by Nam June Paik's wonderful --and very large -- 'portrait' of art dealer Howard Wise composed of video screens, phones and art memorabilia. The piece was

silent but a masterful presence. It was removed and replaced by Tony Oursler's life-sized piece, "Getaway #2" (1994) which shouts rudely at visitors ("Hey You! I said Hey You! What are ya lookin' at?) and totally dominates the gallery. Jenny Holtzer's "Unex sign #1" (1983) seems understated in comparison.

SR: Holtzer is just plain tough. I think that vibes were wired from Alan Rath's "Info Glut II" to this piece of over-information. I excitedly read her work as a book because of the layered panels. This excitement was short-lived, however, when the words didn't flow from one panel to the next.

BLW: Several of the artists in this last gallery -- Oursler, Holtzer, Paik -- have created art that reflects upon technology but is more profoundly focused on life. This is a nice contrast to the celebration of technology for its own sake.

Note: This review has been excerpted, please see LDR web site <<http://mitpress.mit.edu/ejournals/Leonardo/ldr.html>> for full version.

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< WWW Review: Feux Chalins >

<<http://www.geocities.com/~feuxchalinsweb>>

Reviewed by : Roger F. Malina  
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This well designed and effective site is dedicated to cultural expression of french-speaking communities in Acadia (Nouvelle Ecosse, Canada) and the "New World". The web site is accompanied by annual print journals Marache and Feux Chalins whose 1998 issue is a special issue Acadie/Louisiane, and includes authors " De la Louisiane a la Nouvelle Ecosse, en passant par le Nouveau Brunswick et le Quebec". The web site includes texts, hypermedia works, images and includes some of the work appearing in the print journals.

The publication is a true integrated electronic/print work. The Editorial Committee is under the lead of editor in chief Ollivier Dyens. While reading the web site hypertexts and the print journal I was struck by the new emergence of polyglot publishing on the Web. How will human languages evolve under the new communications environment of the Internet? Will we see the emergence of hybrid human-machine languages ( of which VRML and HTML are early predecessors)? Does the web architecture favor a multi-lingual ecology or rather lead to suppression of minority languages ? Will electronic and print cultures diverge ? What kind of new language associated cultural identities will emerge ? ?

Although the dominant language of the Internet is english, there is now rapid growth of other language based sites and communication (eg the explosive growth in Brazil). There are still strong impediments to usage for languages based on ideo or pictograms rather than alphabets. The signs are however that the Internet will in fact prove to be structurally polyglot, and in some cases may provide effective strategies for maintaining minority languages spoken by small dispersed communities. In addition the emergence of "protected" spaces with limited or controlled access ( encoding, passwords) is providing ways for small and other small communities to protect themselves from the "homogenization" of most of the now commercially driven web sites. As these communities evolve we will no doubt see the emergence of new languages- dialects as well as full fledged new languages.

Because of the shorter time scales of electronic communication, we can

expect to see accelerated fragmentation and diversification. These will be languages based upon cultures of affinity rather than geography within what might be termed "electronic monasteries" dedicated to the archiving and spreading of the groups' culture. Feux Chalins is an example of such a cultural tool that is well adapted to reaching its geographically diverse community. Within the Feux Chalins literature a rich linguistic ecology is developing that includes french with english translations, french dialects spoken in the various francophone communities, english without french translation, and texts that are referred to as being in "slanglais". The 1998 edition Of the print journal Feux Chalins includes a glossary of acadien terms and reference to the literature on acadien grammar and language.

Another reflection provoked by Feux Chalins is the decidedly non-technical orientation of the poetry, prose and fiction presented. The authors seem to be technologically neutral, and the content is decidedly personal, emphasizing exploration of internal human landscapes. Their concerns seem barely affected by the "infosphere". Yet this culture is existing within a decidedly technophillic web culture driven now by its corporate and entertainment interests; the marketing hype is all pervasive. We can surely expect a strong counter- reaction with new kinds of "back to nature" movements - resolutely unplugged and self-sufficient, harking back to the Romantic reaction to the earlier industrial revolution. Feux Chalins does address centrally the issues that relate identity to language and cultural expression. Ollivier Dyens has written elsewhere about the co-evolution of human culture and the symbiotic technologically originated culture, and would probably argue that the collective unconscious will eventually reflect the new situation. For instance the authors in Feux Challins seem to be de-coupled from the concerns expressed by the new science fiction authors that have emerged in synchronicity with the development of the web.

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< Book Review: Electronic Culture >

Duration/Reflection:Electronic Culture  
Technology and Visual Representation  
edited and introduced by Timothy Druckrey  
New York: Aperture, 1996

Reviewed by: Andreas Broeckmann  
Email: <abroeck@v2.nl>

Newsgroups and mailing lists have the advantage of making the path between writing and reading short and fast, thus creating the possibility for a form and intensity of intellectual discourse that can rival the journalistic exchanges in Paris in the 19th century, or those of Weimar Republic Berlin.

The Nettime ZKPs are the fast condensations of the debates held on this list, and they are good examples of how the old Gutenbergian medium will slow down and substantiate the same words and ideas that previously sped across the wires as data packets. In analogy to the recent discussion of 'Englishes' it might be well worth reminding ourselves of the different reading habits and forms of intellectual appropriation associated with the various material forms in which we experience texts.

The New York photography publishers Aperture have just published a volume called 'Electronic Culture. Technology and Visual Representation', edited and introduced by Tim Druckrey. The book contains 31 essays by European and North American writers and spans half a century of critical writing about culture and technology. For

me it was a welcome reminder of the historical dimension of current discussions about culture and technology, and I would here like to just very briefly point to its content which I feel is a very valuable contribution to a slowing down and substantiation of our considerations of digital culture.

The volume is divided into four main sections (History; Representation: Photography and After; Theory; Media/Identity/Culture) and deals with a broad spectrum of issues of technology, media and representation. Roughly speaking, it starts where Walter Benjamin broke off, i.e. where the image becomes associated with digital rather than analog reproduction, and where technology moves from the industrial into the post-industrial age of cybernetics. And it finishes with the theoretical and cultural impact of VR technologies and electronic networks whose aesthetic impact remains as yet largely unexplored.

Given Druckrey's own and Aperture's special interest in visual representation and photography, the collection places a clear emphasis on digital imaging technologies, from post-photography to VR environments. However, *Electronic Culture* succeeds in placing digital imaging in the wider contexts of the histories of science theory and technology, of cybernetics and the social and political usages of technology, so that it offers not only useful analyses of theories of representation in the digital age, but contributions to a social and technological history of contemporary (visual) culture. On the whole, it is more interested in the art, science and technology complex than in popular culture, and its greatest achievement might lie in making available a series of theoretical media texts that show that there is a significant tradition of thought in this field that does not need McLuhan as its patron saint. It is worth noticing that more than half of the authors in this book are Europeans. In practice, this means that there is very little MIT-style techno-positivism, and a lot of historical and theoretical scrutiny.

Two minor complaints: an alphabetical index would have been useful, as would have been quoting the dates of the original publications, not least because it would have created a stronger sense of the chronological parameters of this most recent development in the history of visual culture. However, the book still communicates a clear sense of the historical depth of thinking about the impact of digital technologies in the 20th century, and unlike many of the hype-driven compilations that are hardly more than thematic special issues of art and culture magazines, this is a book that looks beyond the immediate interests of 1996, and that will last. It also makes us curious to read on, to follow certain thematic currents and authors, and to pay more attention to the interrelations between technology, culture and visual representation in an historical perspective. Slowing us down in this way could be a useful, humbling exercise which, if practiced more widely, would probably save us from a lot of the intellectual redundancy created because of a lack of historical consciousness.

(Texts by Sandy Stone, Vannevar Bush, Martin Heidegger, Hans Magnus Enzensberger, Arthur I. Miller, Jean-Louis Comolli, Bill Nichols, David Tomas, Kevin Robins, Roy Ascott, Raymond Bellour, Kathy Rae Huffman, Kim H. Veltman, Lev Manovich, Vilem Flusser, Florian Roetzer, N. Katherine Hayles, Siegfried Zielinski, Slavoj Zizek, Erkki Huhtamo, David Blair, Louise K. Wilson/ Paul Virilio, Friedrich Kittler, Peter Weibel, Sherry Turkle, Pierre Levy, Hakim Bey, Anne W. Branscomb, Geert Lovink, Critical Art Ensemble.)

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< Book Review: Higher Superstitions >

Higher Superstition: the Academic Left and its Quarrels with Science  
Written by Paul R. Gross and Norman Levitt  
The Johns Hopkins University Press;  
Baltimore & London, 1998. (328 + xiv) pp  
ISBN: 0-8018-5707-4.  
\$16.95 paperback

The Flight from Science and Reason  
Edited by Paul R. Gross, Norman Levitt, and Martin W. Wise  
New York: New York Academy of Sciences, 1997. (593 + xi) pp  
distributed by The Johns Hopkins University Press  
\$19.95 paperback

Reviewed by Wilfred Niels Arnold  
Email: <warnold@kumc.edu>

The story goes that a pair of Nobel Prize winners, co-investigators that were husband and wife, became greatly excited by the findings of one of their postdoctoral fellows. This seemingly productive young man had gone on to his next professional appointment leaving a pregnant manuscript, ready for submission to the top science journal of the day. Full of enthusiasm but eternally cautious, the senior couple asked a newly arrived student to repeat a key experiment. The neophyte's lack of success was followed by a series of negative results from progressively more senior personnel. In due course the delicate phone call was placed to the departed author. "Your results are so interesting, but none of our people has been able to repeat your work! We are impressed by your hypothesis, but very frustrated. Sorry to bother you, but is there something beyond your notebooks that we are overlooking?" At the other end of the line a calm and thoughtful voice declared that nothing came to mind. A month passed without improvement. The female Laureate picked up the telephone and, forsaking ceremony this time, announced, "We cannot repeat your work, none of the postdocs can duplicate any of your data, even my husband has tried in vain!" After a few seconds of silence, "Oh well, he is the best, and if he can't do it then no one can."

One might add "it's all relative" for a second chuckle. But if someone tells you that this is the sort of thing that Albert Einstein's "relativity" is all about, it's too silly to be taken even humorously; or so I thought until recently. But there are people out there who have a different view and their numbers and agendas are growing and extending, as documented by the authors of "Higher Superstition." One example from the anti-science camp asserts that Werner Heisenberg's "uncertainty principle" is proof positive that there is nothing accurate in modern physics, especially that of Western European origin. Another purports that scientific discoveries are no more than socially constructed fictions. Others search for a more female essence within the hard sciences.

Paul Gross, former director of Woods Hole Marine Biological Laboratory, and Norman Levitt, a professor of mathematics at Rutgers University, have taken on all those who would threaten traditional objective science and they are to be congratulated. They do vigorous battle against the proponents of postmodern philosophy, radical feminism, extreme environmentalism, Afrocentrism, and so on, in a lively book which was first published in 1994 and now appears in paperback edition with a new preface and added footnotes. They go out of their way to attempt fairness and understanding of the viewpoints that they subsequently attack and usually demolish by logic and example. In the end the easiest argument to embrace is that the science of Newton, Darwin, and Einstein obviously works. On the other hand, the modern day wonders who seek precursors to penicillin in

ancient Egyptian religions and suggest that Newton's Principia be regarded as a "rape manual" are best judged as having resorted to unconvincing polemics. The amazing thing is that the critics of classical, objective science are not comic book characters but university professors who offer courses in everything from "alternative medicine" to "physics without mathematics." A considerable amount of work is required of the average citizen in order to obtain even a working knowledge of things scientific. I wonder if the driving force behind classroom support of the strange alternatives is that very little effort is demanded in a laissez faire atmosphere where unanchored suggestions float in and out of ears. For many potential American readers the book's subtitle about the academic left will probably generate some distaste, albeit based upon flawed stereotypes within our politics and history. The authors rationalize their choice in the first chapter but it is an unfortunate one because the primary title could stand alone. If anything, by shoving all of their recognized subjects into the "Academic Left" a measure of unnecessary sympathy may be engendered for their opponents.

In the second volume, "The Flight from Science and Reason," Gross and Levitt were joined by Martin W. Lewis, professor of geography at Duke University and they have edited forty contributions from a 200 member conference in 1995, under the auspices of the New York Academy of Sciences. The book is organized into subtitles including "Health," "Environment," "Feminisms," "Humanities" and seven more. There is much of interest to be found for any reader who aspires to keeping abreast of developments in this aspect of epistemology, no matter the degree of depression that some of the elements will elicit. Not surprising for such a diverse group of contributors the quality of the essays varies from the thoughtful and entertaining pieces by Gerald Weissmann on "Sucking with Vampires; the Medicine of Unreason" and "Ecosentimentalism: the Summer Dream beneath the Tamarind Tree" to the strange and (for me) incomprehensible "Constructivism in Psychotherapy: Truth and Consequences" by Barbara Held. Dr. Held blew me away in explaining "... the true meaning for psychotherapy of constructivism / constructionism" which is part of her text. In the first footnote she states that "I sometimes use the term "constructionism" or "constructionist" to include both doctrines. Where I use the term "constructivist" or "constructivism" alone, I mean only that doctrine, except in the title itself." Such word play is more common on the side that is being criticized!

Within the section on "The Public Image of Science" David Goodstein presents a careful analysis of "Conduct and Misconduct in Science." Important as this problem may be it does seem to lie apart from the general tenor of the other subjects in this compilation. The perpetrators of scientific fraud are usually well educated, expert in their own discipline, and then resort to deceit and fabrication. The anti scientists are typically poorly grounded but give the appearance of starting from a sincere position, even though their working hypotheses seem off the wall to most of us. Incidentally, the story of the first paragraph came to me second or third hand, but I have reason to believe it true in substance. Needless to say, the manuscript in that case was never sent. But the dud in the plot did go on to higher and higher office. I understand that he was eventually defrocked for demonstrable scientific fraud. Both volumes are recommended to any audience that takes education seriously and is prepared to worry along with the authors about the potential threats to objective science that they have exposed. The repetitive setting up of straw men becomes a mite tedious at times and one wonders if some of the cases are extreme examples that have been dignified by the attention. But overall, "Higher Superstition" will remain a benchmark in this field and "Flight from Science and Reason" will be a useful source for years to come.

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< Book Review: Bodies of Subversion >

Book Review: Bodies of Subversion:  
A Secret History of Women and Tattoo  
Margot Mifflin  
Juno Books, New York 1997  
ISBN: 1-890451-00-2  
\$23.95 paper

Reviewed by: Mike Mosher  
Email: <mikemosh@well.com>

Women as artists. Women as art galleries. Women as artworks. These are topics all covered in Margot Mifflin's richly illustrated book on women and tattoos, from the nineteenth century to the present. At its most sociological, tattoo parlor workplace discrimination and contest nudity issues are explored, and many artists and tattooed women are interviewed in the United States, Spain and Argentina (a study might also be done on Japan). Yet it is the book's pictures that indelibly etch themselves upon the reader's memory.

Early sideshow attractions claimed forcible tattooing, rarely the case but all the more enticing to the fantasies of male spectators. Betty Broadbent entered a beauty contest (the world's first televised one!) at the 1939 World's Fair with legs and arms covered in cowgirls, flags and foliage. There are personal histories here, of women who married the male tattoo artists who decorated them and then took up the trade, of circus fat women who grew skilled in the electric pen. Today a tattoo is sometimes obtained as a breast cancer survivors' mark of pride, calling attention to the woman who survived and the courage she found within.

The book's subjects show us their skin's rich gamut of imagery, including a bee-dance, dual portraits of Malcolm X, abstract zig-zags and "automatic writing" to illusionistic zippers and bones. Imagery from northwest Native American cultures has been adapted to women's tattoos, as have been figures from the paintings of Klimt and by illustrators Tenniel and Beardsley.

Sometimes-but not always-the motifs put on the skin are less violent, and Mifflin doesn't neglect mention of the heartbreaking "Property of ..." tattoos often found on outlaw bikers' girlfriends. For all the sexual stereotypes of tattooed sailor men wearing nude or hula-dancing women, inkwork now gracing women's bodies include graphic testaments of lesbian commitment, spiritualized Yoni-goddesses, and the curiously inarticulate Stephanie Farinelli's hundred mechanical penises. Margot Mifflin has found much variety in what Barbara Kruger has called "skin as signage".-but what does all this skin really say?

I treasure junior high school memories (from the days of hippie "body paint") of drawing Peter Max-like stars, planets and flowers with watercolor markers on the arms and legs of female classmates. Nowadays, in the classroom I'll sometimes look upon particularly inked or pierced students and wonder how they'll look as senior citizens. The series of full-body photographs of Elisabeth Wienzirl in her forties, sixties and eighties show a smiling person quite comfortable with herself and time's effects on her intricately-embellished flesh. In almost every photograph in Bodies of Subversion these painted people who are so used to being gazed upon proudly gaze back.

The visual relationship of tattoos to the medium of the comics may deserve its own book, but imagery of the wicked Queen from Disney's



animated "Sleeping Beauty" and even the "%\*?#@" that signifies profanity in the cartoons both appear on bodies shown here. Among the individualistic women tattoo artists interviewed is Jacqui Gresham of New Orleans, whose female African-American patrons especially relish the Black Betty Boop figures she's developed. Even drawn with devilish horns, batwings, tail and pitchfork, this visual meme (both babylike and very sexual) from the 1930s has been newly re-ethnicized to be taken up by a new community, cultural fluidity in the tradition of the bootleg Black Bart Simpson t-shirts appearing on the streets of New York a decade ago. Bodies of Subversions inspires and exposes the reader to see new connections in cultural studies, women studies, art and design...while introducing us to a gallery of illustrated people who would be interesting to meet.

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OPPORTUNITIES
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< Postdoctoral Research in Music Cognition - Nijmegen University >

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Faculty of Social Sciences  
Catholic University Nijmegen  
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At the Nijmegen Institute of Cognition and Information (NICI) of the Nijmegen University a research team was set up in September 1997, supported by the Dutch Foundation for Scientific Research (NWO) as the PIONIER project "Music, Mind, Machine". This project aims at improving the understanding of the temporal aspects of musical knowledge and music cognition using computational models. The research is interdisciplinary in nature, with contributions from music theory, psychology and computer science.

A number of studies are planned, grouped according to the following perspectives: the computational modeling methodology, the music domain itself, and applications of the findings. The methodological studies are concerned with the development of cognitive modeling languages, the study of (sub)symbolic formalisms, the development of programming language constructs for music, and the evaluation of physical metaphors in modeling expressive timing. The domain studies focus on specific temporal aspects of music, such as beat induction, grace note timing, musical expression and continuous modulations in music performance. In these areas both the construction of computational models and their experimental validation are being undertaken. The theoretical results will be applied in e.g., editors for musical expression for use in recording studios.

In order to realize these aims, a multi-disciplinary research group was formed, in which teamwork and collaboration play a crucial role. It is expected that all team members are actively involved in building the team and the realization of the project's aims. The demands on the team members is high, conducting innovative and internationally recognized research. However, in return, our stimulating research environment provides adequate training and technical support, including a high-quality infrastructure and recording and music processing facilities. Close contact is maintained with the international community of researchers in this field.

More information on the project and a description of the planned studies can be found at <<http://www.nici.kun.nl/mmm>>.

REF 21.2.98:

One postdoc will be responsible for improving an existing connectionist model for quantization and will design and validate this and other models and supervise their implementation. Quantization is the process of separating the categorical, discrete timing components -durations as notated in the musical score- from the continuous deviations in a musical performance. The project has, next to the fundamental aspects (connectionist models of categorical rhythm perception and their empirical validation), an important practical focus and aims at developing a robust component for automatic music transcription systems. The research will be realized at the lab for Medical and Biophysics (MBFYS) and at the Nijmegen Institute for Cognition and Information (NICI), both at the University of Nijmegen and is funded by the Dutch Foundation for Technical Sciences (STW). We are looking for a psychologist with experience in both experimental methods and in computational modeling. Experience with attractor networks is an advantage. Appointment will be full-time for three years, with a possible extension.

REF 21.3.98:

The other position requires a Doctorate in Music Theory/Analysis, Psychology, or Music Cognition. A thorough knowledge of the music cognition literature is required, preferably centering on a computational modeling approach. In addition, the candidate needs to have ample practical experience in conducting experiments and a thorough knowledge of music theory. Although the project focuses on musical performance and rhythmic structure, research experience in these domains is not essential. He or she must be able and willing to collaborate with the other members of the team on existing research projects and contribute to the supervision of doctoral level research. The ability to communicate clearly and work as part of a team is crucial. Experience in collaboration with researchers from computer science, artificial intelligence, or music technology would be beneficial, as would some knowledge of these fields.

Appointment will be full-time for two years, with a possible extension.

The Faculty of Social Sciences intends to employ a proportionate number of women and men in all positions in the faculty. Women are therefore urgently invited to apply. The selection procedure may entail an assessment of collaboration and communication skills. Applications (three copies, in English or Dutch) including a curriculum vitae and a statement about the candidate's professional interests and goals, and one copy of recent work (e.g., thesis, computer program, article) should be mailed before the 1st of November. Please mark envelope and letter with the appropriate vacancy number.

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< Postdoctoral Research - Austrian Research Institute for  
Artificial Intelligence >

Dr. Gerhard Widmer  
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Austria

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We are pleased to announce the availability of several post-doctoral research positions at the Austrian Research Institute for Artificial Intelligence in Vienna, Austria. We are looking for scientists to work in a research project on 'Artificial Intelligence Models of Expressive Music Performance.'

The project is funded by a generous research prize/grant awarded to Dr. Gerhard Widmer, of the Austrian Research Institute for AI, by the Austrian Federal Government (a brief description of the current state of this research and the results so far can be found at <<http://www.ai.univie.ac.at/oefai/ml/music/musicproject.html>>).

The goal of the project is to apply Machine Learning methods to the discovery and analysis of principles of expressive music performance; that includes basic research on appropriate music representations, the analysis and modelling, in AI terms, of musicological theories of structural music perception and their relevance to musical expression, the development of machine learning and pattern recognition algorithms for the analysis of complexly structured performance data, the analysis of the learning results in the light of knowledge from musicology and cognitive science, and many other interesting research tasks.

For this strongly interdisciplinary project, we are looking for a (possibly heterogeneous) group of two or three post-doctoral researchers with a strong background (and a completed Ph.D.) in:

- either machine learning / pattern recognition / general AI
- or music theory / cognitive musicology or some related field.

Preference will be given to candidates who combine expertise in both music and computing/AI and who already have a record of interdisciplinary research involving one or more of the above fields. Equally important (though not easily measurable) are creativity and the ability and motivation to contribute innovative ideas to an exciting research project; the PostDocs will be given a lot of freedom in formulating research goals and pursuing their research and thus shaping the project.

The salary will be in the area of ATS 380.000 - (ECU 27.500) per year (before taxes). The positions are initially open for two years, but can be extended for up to four additional years. The projected starting date is October 1998, but later dates are possible.

If possible, applications should be sent by e-mail.

Please send your application (with CV, publications list, one or two substantial and pertinent publications, the names of two persons willing to write a letter of recommendation if needed, and any other material you consider interesting (e.g., photographs, link to home page, etc.) to the above address.

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| PUBLICATIONS |  
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< Organised Sound - Issue thematic title: Sound and Image >

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ORGANISED SOUND

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An International Journal of Music and Technology

Volume 3, Number 3. Issue thematic title: SOUND AND IMAGE.

Date of Publication: December 1998.

Publishers: Cambridge University Press.

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Organised Sound has hitherto been principally concerned with the audio arts. However, we live in a rapidly changing world. In particular, given the relentless evolution of competent technology in the form of 'multimedia systems' and the MPEG distributive media, it seems timely to explore the relationship between the audio and visual spheres in the digital arts.

Not to do so risks de facto acceptance of misguided dogma: the supposed predominance of the one medium over the other for instance. Whilst people have wrestled with these issues in the past, the imminent arrival of this technology on a large scale into consumer markets creates new opportunities, as well as an urgency to deal with aesthetic concerns: What are the compositional issues, given that we may be dealing with audio-visual artefacts; what is the meaning of performance of such artefacts; what tools exist or need to be developed for such composition and performance; what is our experience of good (and bad) practice in this field; what is our attitude to new consumer 'products' which could be distributed on an unprecedented scale over the Internet? These are examples of the aspects which we would like to explore in this issue of 'Organised Sound', especially in relation to our established sphere of interest concerning electroacoustic music.

Notes for Contributors can be obtained from the Editors or from the Organised Sound Web site.

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< Chaos and Fractals: A Computer Graphical Journey >

Leonardo editorial board member Cliff Pickover is the editor of a just-released book Chaos and Fractals: A Computer Graphical Journey.

This is a 10-year compilation of advanced research, and published by Elsevier. The book includes many color plates and computational recipes. For a table of contents and book cover image, see:  
<<http://sprott.physics.wisc.edu/PICKOVER/chfrac.html>>.

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ANNOUNCEMENTS

< Symposium on Music and Computers - Corfu, Greece >

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SYMPOSIUM ON MUSIC AND COMPUTERS  
Ionian University  
Corfu, Greece  
23-25 October 1998

The 1st Symposium on Music and Computers will be held at the island of Corfu in Greece. The symposium is organised by the Music Department of the Ionian University and the General Secretariat for Research and Technology.

Its main objective is to foster investigation of the impact of technology on musical thought and musical creativity. Computation and technology extend the boundaries of music creation and give rise to a multitude of new exciting possibilities; however, the interaction of such new methods with theoretical and aesthetic aspects of musical understanding seems to receive little attention. The aim of this symposium is to stimulate the exchange of ideas on the merits and also difficulties of bringing together musical creativity and computer-based technology.

Special attention will be given to the presentation of current directions in computer music research (theory and applications) to students, young composers and musicians. Additionally, special events dedicated to Greek pioneers of computer music will be hosted.

KEYNOTE SPEAKERS

- Jean-Claude Risset (Laboratoire de Mechanique et d'Acoustique, Marseille, France)
- Gerard Assayag (Ircam, France)
- Luc Ferrari (France)
- Emilios Cambouropoulos (King's College London)

Participation to the symposium is free (no registration fee is required).

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< Eighth Annual Florida Electroacoustic Music Festival >

Dr. James Paul Sain, Director of Electroacoustic Music  
University of Florida School of Music  
P.O. Box 117900/130 Music Bldg.

Gainesville, FL 32611-7900  
Tel: (904) 392-0223 ext. 240  
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URL: <http://emu.music.ufl.edu/>

Eighth Annual Florida Electroacoustic Music Festival  
April 8-10, 1999  
University of Florida  
Composer-in-Residence, Larry Austin

Now in its eighth year, the Florida Electroacoustic Music Festival has featured an international variety of contemporary electroacoustic art music. Past composers-in-residence have included internationally renowned composers such as Hubert S. Howe, Jr., Cort Lippe, Gary Nelson, Jon Appleton, and Joel Chadabe.

For more information on the electroacoustic music program at the University of Florida point your browser to the Florida Electroacoustic Music Studio home page <http://emu.music.ufl.edu/>.

The University of Florida is located in the North Central Florida city of Gainesville. Gainesville is served by Delta Airlines (via America Southeast Airlines), USAir Express, and Continental. The city is an approximate 2.5 hour drive by car from Jacksonville, Tallahassee, Orlando, and Tampa, Florida. Airport shuttle service will be provided by the festival hotel for transportation from/to the Gainesville Regional Airport but not to other area airports. This year's festival occurs two weeks after the SEAMUS conference at San Jose State University; the Society of Composers Inc. meeting in New York City takes place two weeks after our festival. It is hoped that this will encourage international submissions.

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< Conference - Theorizing Space and Time at the End of the  
Millennium - Georgia, USA >

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The conference "Theorizing Space and Time at the End of the Millennium" will be held in Athens, Georgia from Friday, April 9 to Sunday, April 11, 1999. (The 1999 AAG meeting runs from March 23 to March 27).

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Conference Aims  
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Contemporary processes of social, economic, and political change are dramatically transforming how space and time are produced both as material entities and as organizing categories. Such changes are having significant effects on the ways in which people live their lives, constitute their identities, and understand their places in the world. As a result, long-standing notions of time and space are being challenged, reworked, and reconstituted.

This mini-conference seeks to bring together scholars from around the globe to address these and related issues. The conference is planned as a forum for a focused and informed discussion of the central issues concerning changing theorizations of time and space. Papers that develop both theoretical and empirical points are preferred. Issues which might be discussed at the conference include, but are not limited to:

- \* Labor and new geographies of social regulation
- \* Analytical and contextual approaches to space and time
- \* Sex, sexuality and space
- \* Environmental (dis)function
- \* The changing political economy of space and time
- \* Place and the politics of identity
- \* Globalization and localization

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Participation and Format  
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The conference is scheduled to begin with a plenary address by Julie Graham & Kathy Gibson ("J.K. Gibson-Graham") [authors of "The end of capitalism (as we knew it): a feminist critique of political economy"] on Friday, April 9. Paper presentations and discussion sessions will be held on Saturday, April 10 and Sunday, April 11, 1999. The final program will be put together by the conference committee after submitted abstracts have been reviewed. Whilst efforts will be made to include as many papers as possible, there may be some scheduling constraints. Please submit abstracts by October 15, 1998. Persons submitting abstracts will be informed of paper acceptance and the conference program by November 15, 1998.

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Funding  
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The conference is sponsored by the Department of Geography at the University of Georgia. The registration fee is \$25.00 and must be received by February 1, 1999. Efforts are being made to secure travel funds for partial assistance for program participants.

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Location  
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The conference will be held in the Department of Geography and at the Holiday Inn in Athens, Georgia, adjacent to the University of Georgia campus. The city has much historical and architectural interest, including many well-preserved ante-bellum mansions. In addition to the University, founded in 1785, Athens is internationally known for its music scene (both REM and the B52s hail from Athens).

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< Quantum-Mind: a moderated e-mail discussion >

To subscribe to quantum-mind, send an email message to:  
<listserv@listserv.arizona.edu>.

The message should read:  
subscribe quantum-mind yourfirstname yourlastname

Quantum-mind postings are archived at:  
<<http://listserv.arizona.edu/lsv/www/quantum-mind.html>>

Enigmatic features of both quantum mechanics and consciousness have led to a number of proposals suggesting links between the two. Some have proposed quantum effects in the brain, while others have suggested a role for consciousness in the interpretation of quantum mechanics. The advent of quantum information technology (quantum computation, quantum cryptography, etc.) promises inevitable further connections.

Quantum-mind <quantum-mind@listserv.arizona.edu> is a moderated e-mail discussion of quantum approaches to consciousness. Submissions are evaluated by co-moderators who include Lawrence Crowell, Robert Flower, Gordon Globus, Stuart Hameroff, Rhett Savage, Erick von Schweber, and Saul-Paul Sirag. They endeavor to present relevant, rigorous, and succinct postings, and will sometimes comment. Skeptical criticism is welcome and appreciated.

Quantum-mind is sponsored by Consciousness Studies at the University of Arizona and the Intuition Network.

Quantum-mind discussions follow 10 topical areas. They are:

- 1) Features of consciousness resistant to classical explanations (subjective experience, "qualia", binding, pre-conscious to conscious transitions, non-computability, free will, non-local anomalies, apparent backwards time referral etc.).
- 2) Interpretations of quantum mechanics and the nature of reality (the measurement problem, Bohm's theory, Everett's theory, collapse interpretations, many-minds interpretations, Schrodinger's cat, Wigner's friend, Bell's theorem, observer effects, quantum gravity, quantum field theory).
- 3) Possible macroscopic and microscopic brain loci for quantum effects relevant to consciousness (thalamocortical loops, dendritic webs, membranes/membrane proteins, synapses, ion fluxes, microtubules, pre-synaptic vesicular grids, water, glia, gap junctions, etc.).
- 4) Potentially relevant quantum mechanisms in the brain (quantum coherence, superposition, evanescent photons, tunneling, vacuum ground states, Bose-Einstein condensates, collapse including objective reduction, decoherence).
- 5) Bioenergetics, isolation and biological feasibility issues (thermal noise/decoherence, Frohlich mechanism, ordered water, actin gelation, protein conformational regulation, hydrophobic pockets, anesthetic



effects, etc.).

6) Philosophical approaches amenable to fundamental physics (idealism, monism, dualism, panexperientialism, Whitehead, Russell, Wheeler, Eastern approaches, etc.).

7) Specific biological quantum consciousness models (Beck/Eccles, Bohm/Hiley, Jibu/Yasue, Marshall, Penrose/Hameroff, Sarfatti, Stapp, Vitiello, Walker, Wolf, etc.).

8) Quantum information technology and theory (quantum computation, quantum cryptography, quantum teleportation, liquid NMR quantum computing, counterfactuality), information.

9) Experimental approaches (non-locality, time anomalies, quantum correlations and coherence in biological systems, anesthetic effects, collapse/reduction, etc.).

10) Announcements, conferences, books, articles, etc.

Future plans for quantum-mind include interviews with noted researchers, topical forums, tutorial/reviews, topically organized archives, full website and more. Suggestions are welcome.

\*\*\*\*\*

< Revolutionary New 3D Virtual Museum Tour now online >

URL: <<http://www.imj.org.il/vrmenorah>>

Susan Hazan  
Curator of Multimedia  
Email: <[shazan@imj.org.il](mailto:shazan@imj.org.il)>

A refreshingly new way to view museum collections - a photo-realistic 3D gallery tour, streamed at 15 frames per second over standard dial-up modems. Embedded 3D-hyper links enabling viewers to interact with the movie, ideal for navigating in virtual environments. Plug-in for PC downloads and installs automatically.

In partnership with WebGLide Inc., and for the first time ever on the World Wide Web, The Israel Museum, Jerusalem, has launched a revolutionary new product enabling a real-time interactive, photo-realistic experience on the Internet, using a standard PC and modem, at its Web Site.

This application allows visitors to 'step' into a three dimensional exhibition, tour the galleries, select individual works, and view the exhibition in detail.

This virtual 3D exhibition is an adaptation of a major temporary exhibition at the Israel Museum, "In the Light of the Menorah: Story of a Symbol" which opened on Israel's 50th Independence Day, and which traces the manifold incarnations and interpretations of the seven-branched candelabrum, from Biblical sacred object to national emblem, as represented in objects from the extensive Museum's collections of archaeology, Judaica, and the fine arts, and through icons from institutions worldwide.

WebGlide Inc. is the first company on the web to deliver real-time 3D experiences with unprecedented quality, given today's limited Internet bandwidth, and the Israel Museum is the first museum to incorporate this exciting new technology to provide remote visitors with an immersive, interactive gallery experience on-line, based on a current exhibition.

Dont forget to sign the guest book before you leave !

\*\*\*\*\*

< Invencao Conference - Sao Paolo, Brazil >

Arlindo Machado

Email: <instituto@itau cultural.org.br>

Leonardo/ISAST is co-sponsoring the "Invencao" conference being organised by the Instituto ITAU Cultural in Sao Paolo, Brazil from Aug 25-29 1999. Deadline for presentation proposals is Nov 30,1998. "Invencao" will seek to examine the consequences of convergence between art, science and technology on our sense of human and self identity, on consciousness, community and the city as well as on learning and leisure. Leonardo/ISAST associate members will receive a 20% discount on fees. Leonardo/ISAST associate members planning to attend the conference are encouraged to notify us at: <leo@mitpress.mit.edu> to allow us to plan associated events and activities.

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< Artagora and Modernities - Call for Multimedia Works >

Teoman Madra

Tel: 090 212 2114497

Fax: 090 212 2121393

Email: <btmadra@turk.net>

URL' s: see below

<<http://artagora.ibun.edu.tr>>, <<http://artagora.ibun.edu.tr/>> for all your new joint efforts and participation as media artists, media art criticisms and other global concerns and more on the occasion of the modernities and memories exhibition of recent works from the islamic world and of art agora as an undertaking of Istanbul Bilgi University to initiate an on line dialogue between artists and net users worldwide <<http://abone.turk.net/btmadra/homepage.html>>, <<http://abone.turk.net/btmadra/homepage.html>> narrates for the BM Contemporary Art Center <<http://abone.turk.net/btmadra/bondagel.html>>, <<http://abone.turk.net/btmadra/bondagel.html>> is for Teoman Madra.

This is a multi media call for works from Teoman Madra.

Superimposing new music and visual items in togetherness is a multi media action that can make practical use of many ready made -and custom- utilities throughout numerous computer software or other tangible multimedia vehicles that may be listed are like the following items:

concepts for projects, new aesthetic ventures, photoshop based photographic visual works, video-art works, new musics, live modern dance performances and many consciencious acclaims throughout the cyber space venues.

The exhibition neither promotes individual artists or an artistic movement nor represents national or regional identity. However, it represents a common pattern in handling the conditions of modernity and post-modernity, it reveals cultural differences between Muslim societies, it displays processes of re-practicing traditional distinctions, it suggest movement towards undiscovered paths and thus the acquiring of new ways of perception.

Artists, designers, students, architects and non-artists, can submit their work to the virtual exhibition. The works should also visually

reflect the plurality and diversity of on-going discussions and prevalent discourses in the Islamic world as well as in the non-Islamic world. The virtual exhibition, while referring to the problematics set out, will also come up with new and different modes and forms of presenting art on the internet.

Works, while encompassing modern and post-modern art language with their concept, style and form, will have the occasion of giving new definitions and active visual possibilities to the presentation of art works. Thus, they will determine the characteristics of a virtual exhibition. The virtual exhibition does not aim to display works that are found in galleries, museums and other artistic institutions or (ideally) repeat conventional ideas and images that have been displayed within the 'real' environment.

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< Emotions, Qualia and Consciousness Workshop - Naples, Italy >

Emotions, Qualia and Consciousness  
Ischia (Naples), Italy  
October 19-24, 1998

Email: <center@u.arizona.edu>.

URL: <<http://www.consciousness.arizona.edu/italy.html>>

A workshop offered by the International School of Biocybernetics in collaboration with Consciousness Studies at the University of Arizona.

Confirmed speakers include (partial list):

Aaron Ben-Ze'ev, University of Haifa  
Margaret Bradley, University of Florida  
Paul Griffiths, University of Sidney  
Ursula Hess, University of Quebec at Montreal  
Alfred Kaszniak, University of Arizona  
Joseph LeDoux, New York University  
Arne Ohman, Karolinska Clinical Institute

The experience of emotion is a ubiquitous component of the stream of consciousness, and emotional "qualia" appear to interact with other contents and processes of consciousness in complex ways.

Many scholars and scientists believe that no scientific or philosophic account of consciousness can be complete without an understanding of the role of emotion.

In an effort to advance such understanding, the International School of Biocybernetics of the Istituto Italiano per gli Studi Filosofici, in collaboration with Consciousness Studies of The University of Arizona, has organized this workshop.

Abstracts of 350-500 words are being accepted that are either reports of empirical studies or focused theoretic contributions in any of the following topic areas:

- 1) Emotion and neuroscience
- 2) The role of emotion in conscious cognition
- 3) Conscious awareness of emotion and health
- 4) Research methods in emotion
- 5) Emotion and development
- 6) Philosophy of emotion
- 7) Culture and emotion

Abstracts should be clearly written and specific.

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