The Emergent and Generative in Nature, the Digital and Art

Dene Grigar
Associate Professor, Digital Technology and Culture
Washington State University--Vancouver
voice: 360-433-9806
dene@eaze.net
http://www.nouspace.net/dene

Keywords

digital art, nature, ontology, emergent technologies

Abstract

Part 1 of "Wild Nature and the Digital Life," entitled The Emergent and Generative in Nature, the Digital and Art, offers four articles that explore nature, the digital, and art in ways that provide not only new ways of thinking about our physical environment and the systems that shape and emanate from it but also new ways of creating and envisioning art within these systems. Together, they compel us to question what it means "to be," whether it is an existence born from binary code and expressed as music, the memory of one found in inanimate flesh forgotten in some lab, or the promise of it in sunshine touching the skin of fruit — ontology viewed from other perspectives other than a human one.

Introduction

When envisioned as a special issue for *LEA*, "Wild Nature and the Digital Life" called for art and nature collaborations; single author works on embodiment theory, telematics and consciousness, natural magic and spirituality; and explorations of any type into connectedness studies, emergence studies, anthropology and social networks, and ecology and the environment — particularly those that combined art and natural history or looked at nature and the digital life from a historical context. In other words, we cast a big net far and wide in the search for unique projects that speak to the ways in which we reconcile and integrate the relationship between wild nature and the digital life; address the part that wild nature plays in our work; look at the ways the functionality of our body in the digital compares with the way it works in the mountains, in the ocean, or other physical spaces; and explore the changes the wired life has brought about to our domestic and professional habitat, how it may have changed our health, or shifted our understanding of ecosystems and of other species on this planet and elsewhere.

Because "wild nature" has traditionally been perceived as the preserve of the physical world and may seem to have little to do with the abstract spaces of the digital, the questions we asked in the Call for Papers were intended to problematize this assumption. For example, we asked: What can be described as wild nature at a time when much of the earth's land is being annexed by cities, brought into production, and turned into tourist meccas or eco-excursions? How are humans reinventing "the wild" digitally? What is the relationship between humans and wild nature, and has it changed with the advent of computer technology? Is the notion of wild nature limited to the physical world, and if not, then where else can we find it? How do those who are most immersed in the digital integrate it with the physical?

Page **1** of 5
http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp

Leonardo Electronic Almanac
Vol **14** Issue **07 – 08 November** 2006
Last updated on 30 November 2006
info@leoalmanac.org

While naturally we encouraged critical and academic responses to these questions, we equally invited both the wide-angle view and the intimate by asking for personal essays, interviews, reports, other genres of writing, and art.

Obviously the expansive nature of our call worked: Over 50 works of poetry, electronic writing, digital art, animation, academic research, and personal essays were submitted. Of these, 10 were selected for the special issue. Still a robust number, particularly in light of the computer intensive graphics many of them include, 10 made it obvious that a double-themed issue was needed. Interestingly, without any agenda or preconceived notion of what the final "product" should look like, we found that the essays, images, sound projects, and animations chosen through the rigorous peer review process set forth by *LEA* fell into two thematic threads.

That said, this special section focusing on the "Emergent and Generative" consists of four works that explore a range of issues relating to nature, the digital, and art. The next section features essays and art that are Performative and Locative in scope.

Leading off is Peter Hasdell's "Artificial Ecologies: Second Nature," an essay outlining work involving "emergent phenomena in constructed digital–natural assemblages." As such, *Artificial Ecology*, Hasdell tells us, is an "exploration into constructed synthetic environments" [1] undertaken by postgraduates from the Architecture and Urban Research Laboratory (A + URL), a program located in Stockholm, Sweden specializing in "the mediated city, urban scale metabolic systems, and artificial ecologies" [2]. The projects he outlines include a table on which plasma clouds, or fog, of the Aurora Borealis are imitated; lemons turned into musical instruments by their own photosynthesis; and washing machine parts and vacuum cleaners assembled as an "automated mediating mechanism that could create a physical manifestation of virtually any abstracted piece of information as input" [3]. All three suggest that while change constitutes the overarching quality of emergence for Stephen Pepper and others [4], for Hasdell and his students, it is also the "sense of play," a condition that shows itself as "open and active" [5].

A project that explores emergence in relation to *natural* environments is one described in "Butterfly Effects: Synthesis, Emergence, and Transduction" by Tara Rodgers, an American musician and writer working in California. Underpinning her work with Julian Henriques' theory that "sound possesses dualities of 'content and form, acoustic energy and sine wave information, both substance and code, particle and pattern'" and utilizing SuperCollider 3, an object-oriented program that allows for real-time audio synthesis, Rodgers produces sound driven by the behavior and migratory patterns of monarch butterflies. The goal of her work is to "achieve a dynamically generated composition that combines core elements into a complex system, describing patterns of emergence and survival." Thus for Rodgers, emergence means the "local" coming together as a way of producing "higher-level behaviors . . . adaptive to environmental conditions" [6].

Musical composition figures also as the subject of Dave Burraston and Andrew Martin's "Digital Behaviours and Generative Music," an essay about reaction-diffusion systems, cellular automata, and computer music. Burraston and Martin, Ph.D candidates at the Creativity and Cognition Studios at the University of Technology in Sydney, Australia, question Ed Fredkin's notion of "Finite Nature" — that is, the idea that "the digital mechanics of the universe is . . . deterministic in nature but computed with unknowable determinism" — and ask, "Can this unknowable determinism be made tangible and contribute to artistic ends?" Their findings suggest that the answer is yes but also lead to the provocative idea that "the art constructed by automata and human symbiosis should be viewed as a collaborative process by the human" [7]. As we see in their work, art is not just process but product, the offspring of natural and digital endeavors.

Page **2** of 5
http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp

Leonardo Electronic Almanac
Vol **14** Issue **07 – 08 November**2006
Last updated on 30 November 2006
info@leoalmanac.org

Moving to the emerging visual art form, BioArt, we find Jennifer Willet's essay, "Bodies in Biotechnology: Embodied Models for Understanding Biotechnology in Contemporary Art." A Canadian artist teaching at Concordia University in Montreal, she questions methodologies, techniques, and assumptions found in the field of biotechnology and calls for "a more holistic understanding of evolving biotechnologies through practical means, an approach that results in a complex text that neither supports or denounces the advancement of biotechnology." To make her case, Willet underpins her views in feminist theories of embodiment, redefining biotechnology as a "technology of living systems — as a technology of bodies" and presents three works of BioArt that exemplify her views for "expanded notions of embodiment in biotechnology." While Willet reminds her audience that language is power, it is clear from the installations she describes that the power of visual language found in art can go far to undermine messages like those generating from biotechnology that distort "public interpretation of complex bioethics" [8].

We end this introduction by pointing out that the title of our special issue begs the question, why is it important to consider wild nature and the digital life? As seen in these essays and works, doing so provides not only new ways of thinking about our physical environment and the systems that shape and emanate from it or new ways to create and envision art but also new insights *beyond* those entailing what it means to be human. Taken together, "wild nature and the digital life" helps us to question what it means *to be*, whether it is an existence born from binary code and expressed as music, the memory of one found in inanimate flesh forgotten in some lab, or the promise of it in sunshine touching the skin of fruit — ontology viewed from other perspectives other than a human one.

References and Notes

1. P. Hasdell, *Artificial Ecologies: Second Nature*, Manuscript (2005).

2. A + URL Architecture and Research Laboratory. Available from http://www.arch.kth.se/a-url/ (2005), last accessed 23 December 2005.

3. S. Virke, M. Lavén, and E. Törnquist. *Terrarizer.* A + URL Architecture and Research Laboratory. Available from http://www.arch.kth.se/a-url/ (2005), last accessed 27 December 2005.

4. S.C. Pepper, "Emergence", in *Journal of Philosophy* Vol. 23, pp. 241-245 (1926).

5. Hasdell, op.cit.

6. T. Rodgers, *Butterfly Effects: Synthesis, Emergence, and Transduction*, Manuscript, (2005).

7. D. Burraston, A. and Martin, *Digital Behaviours and Generative Music*, Manuscript, (2005).

8. J. Willet, *Bodies in Biotechnology: Embodied Models for Understanding Biotechnology in Contemporary Art*, Manuscript (2005).

Page **3** of 5
http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp

Leonardo Electronic Almanac
Vol **14** Issue **07 – 08 November** 2006
Last updated on 30 November 2006
info@leoalmanac.org

Author Biography

DENE GRIGAR is a media artist-scholar and Director of the Digital Technology and Culture program as Washington State University — Vancouver. Her books include *New Worlds, New Words: Exploring Pathways in and Around Electronic Environments* (with John Barber) and *Defiance and Decorum: Women, Public Rhetoric, and Activism* (with Laura Gray and Katherine Robinson); media art works include *Fallow Field: A Story in Two Parts* and *The Jungfrau Tapes: A Conversation with Diana Slattery about The Glide Project*, both of which appeared in Iowa Review Web in October 2004, and *When Ghosts Will Die* (with Canadian multimedia artist Steve Gibson), a piece that experiments with motion tracking technology to produce narrative. The video of the piece has been named Finalist in the Drunken Boat Panliterary Award Competition and has been exhibited at Art Tech Media 06 in Spain. She also serves as Associate Editor for Leonardo Reviews and is the International Editor for Computers and Composition.

Citation reference for this Leonardo Electronic Almanac Essay

MLA Style
Grigar, Dene. "Editorial: The Emergent and Generative in Nature, the Digital and Art." "Wild Nature and the Digital Life" Special Issue, Leonardo Electronic Almanac Vol 14, No. 7 - 8 (2006). 30 Nov. 2006 <http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp>.

APA Style
Grigar, D. (Nov. 2006) "Editorial: The Emergent and Generative in Nature, the Digital and Art," "Wild Nature and the Digital Life" Special Issue, Leonardo Electronic Almanac Vol 14, No. 7 – 8 (2006). Retrieved 30 Nov. 2006 from <http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp>.

Page **4** of 5
http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp

Leonardo Electronic Almanac
Vol **14** Issue **07 – 08 November**2006
Last updated on 30 November 2006
info@leoalmanac.org

" . . . the highbrow hot spot of cyberspace . . . a digital bible
for the lowdown on the [hi-tech] art scene." —Wired

Leonardo Electronic Almanac (ISSN: 1071 4391)

Nisar Keshvani, Editor-in-Chief

Established in 1993, Leonardo Electronic Almanac is, jointly produced by Leonardo, the International Society for the Arts, Sciences and Technology (ISAST), and published by MIT Press, is an electronic journal dedicated to providing a forum for those who are interested in the realm where art, science and technology converge. For over a decade, LEA has thrived as an *international peer reviewed electronic journal* and web archive covering the interaction of the arts, sciences, and technology. LEA emphasizes rapid publication of recent work and critical discussion on topics of current excitement with a slant on shorter, less academic texts. Many contributors are younger scholars, artists, scientists, educators and developers of new technological resources in the media arts.

<u>Wild Nature and the Digital Life</u>
Guest edited by **Dene Grigar and Sue Thomas**

Generative and Emergent
:: Artificial Ecologies: Second Nature Emergent Phenomena in Constructed Digital - Natural Assemblages - *Peter Hasdell*
:: Butterfly Effects: Synthesis, Emergence, and Transduction *- Tara Rodgers*
:: Digital Behaviors and Generative Music *- Dave Burraston and Andrew Martin*
:: Bodies in Biotechnology: Embodied Models for Understanding Biotechnology in Contemporary Art - *Jennifer Willet*

Locative and Performative
:: Kudzu Running: Pastoral Pleasures, Wilderness Terrors, and Wrist-Mounted Technologies in Small-Town Mississippi - *Adam Gussow*
:: Mapping the Disaster: Global Prediction and the Medium of 'Digital Earth' - *Dr. Kathryn Yusoff*
:: Views From Above: Locative Narrative and the Landscape - *Jeremy Hight*
:: Paradigmatic Performance: Data Flow and Practice in the Wild - *Brett Stalbaum*

<u>Wild Nature and the Digital Life Gallery</u>
Curated by **Dene Grigar and Sue Thomas**

:: Future Nature - *Karl Grimes*
:: The Affective Geography of Silence - Towards a Museum of Natural Quiet - *Elisa Giaccardi, Hal Eden and Gianluca Sabena*

art / science / technology

http://leoalmanac.org   lea@mitpress.mit.edu

Page **5** of 5
http://leoalmanac.org/journal/vol_14/lea_v14_n07-08/dgrigar.asp

Leonardo Electronic Almanac
Vol **14** Issue **07 – 08 November** 2006
Last updated on 30 November 2006
info@leoalmanac.org