

New Criteria for New Media

*Jon Ippolito, Joline Blais,
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PART I: INTRODUCTION BY JON IPPOLITO

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In 1998, Benjamin Weil curated an exhibition for London's Institute for Contemporary Art called *Web Classics*. The title was both ironic—the Web had only been around for 5 years at the time—and prophetic. Weil, a co-founder of the influential site *ada'web* and later curator at the San Francisco Museum of Modern Art, once opined that every calendar year corresponded to three Web years.

Weil was right that Internet art has grown up quickly, at least to judge from the frequency of e-mails popping into my inbox from masters' and Ph.D. students researching *ada'web* and its contemporaries. In recognition of the speedy maturation of networked media, a new generation of fledgling new media scholars—and an aging generation of digital trailblazers—will soon establish a tenured foothold in academic departments worldwide.

Or will they? The university, an institution that dates back to the 5th century BC, operates by calendar years rather than Web years, and academic review committees still expect candidates for promotion and tenure to hand them stacks of books and periodicals rather than a list of URLs. Nevertheless, I hope that being a new media scholar means more than publishing books with the word “digital” or “Internet” in the title. Marxism and feminism were also revolutionary discourses, but they failed to change the way history and other academic disciplines do business. By that I mean that even in universities where Marxism or feminism influence scholarship, the broadcast paradigms are still in place: professors “instructing” students, scholars competing for publication in prestigious journals, attention-constraining media such as print and PowerPoint enforcing the one-way flow of information.

New media hold out the promise of toppling these behavioral hierarchies, rather than merely changing the subjects taught according to them. Whether this effort succeeds will depend on whether we, as a group of scholars and activists, can point out the hypocrisy of preaching decentralization from PowerPoint slides or closed-access journals and investigate and contribute to networked modes of sharing knowledge.

Consider scholarly publication, for example. Books and

print journals do have some advantages over virtual ink. For one thing, paper is much more backward compatible; it is easier to find a university library with a century-old book than a working floppy drive. But research universities are supposed to represent the future as well as the past, and the future is about connecting rather than storing knowledge.

Fortunately, new media offer plenty of ways for scholars to connect. ThoughtMesh <<http://thoughtmesh.net>> [1], a project Craig Dietrich and I have developed for the Still Water network for art and culture at the University of Maine and University of Southern California's Vectors program, gives readers a tag-based navigation system that uses keywords to connect excerpts of essays published on different web sites. For example, the reader of an essay on modern art can pick a single term out of that essay's tag cloud, such as “Nam June Paik” and view a list of all the sections from that essay that relate to Paik. Or one can view a list of sections of other articles tagged with “Nam June Paik” and jump right to one of those sections. One can also combine tags to narrow the search: “Nam June Paik” + “Fluxus” + “1962.”

Related efforts include Still Water Research Fellow John Bell's distributed publication system *Re:Paik* <<http://repaik.org>> [2], which allows scholars and critics to ferret out and share contemporary signs of the legacy of this “grandfather of video art” in everything from museum exhibitions to pop music. Recognizing new-media researchers' need to get information into the collective ether as quickly as possible, Leonardo has embarked on *Leonardo Transactions* (<http://www.leonardotransactions.com/>), a “fast track” section of its venerable print journal, which subjects two-page papers to a faster referee process than most peer-reviewed journals can muster. Of course, academics can also circulate ideas quickly and widely by blogging, contributing to Wikipedia, or at least publishing in open access repositories.

Unfortunately, few new-media academics are going to bother with these innovations if their departments' criteria for promotion and tenure recognize only dead-tree journals. That is why these criteria have to change. It will not be easy; the most conservative constituents of university hierarchies often control these criteria. Times are changing, however: not only is tenure irrelevant in many universities worldwide, but even in countries such as the U.K. and the U.S. traditional criteria are becoming overshadowed by “research assessment exercises” and other metrics. By publishing the following criteria de-

ABSTRACT

This paper argues for redefining evaluation criteria for faculty working in new media research and makes specific recommendations for promotion and tenure committees in U.S. universities.

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veloped by Still Water, the research arm of the University of Maine's New Media Department, we hope to influence these fledgling developments—if only philosophically—and remind scholars of all generations that impact in our field can and should be measured differently.

PART 2: NEW CRITERIA FOR NEW MEDIA (JANUARY 2008)

© Jon Ippolito et al.

Authors: Joline Blais, Jon Ippolito, and Owen Smith in collaboration with Steve Evans and Nathan Stormer.

Introduction

Recognition and achievement in the field of new media must be measured by standards as high as but different from those in established artistic or scientific disciplines. As the reports from the American Council of Learned Societies [3], the Modern Language Association [4], and the University of Maine [5] recommend, promotion and tenure guidelines must be revised to encourage the creative and innovative use of technology if universities are to remain relevant in the 21st century.

The following points summarize some of the key areas in which new media research departs from traditional academic scholarship, with the aim of providing a rationale for specific criteria for universities with U.S.-style promotion and tenure policies.

New Form and Content

The differences between traditional and new media excellence lie in both form and content. The hard-copy format of traditional review documentation, such as photocopies or slides, is insufficient for evaluating new media work; screenshots do little justice to electronic projects based on innovative interactive or participatory design. As the MLA puts it, “evaluative bodies should review faculty members’ work in the medium in which it was produced. For example, Web-based projects should be viewed online, not in printed form” [6].

Further complicating the evaluation of new media achievements is the fact that they are often interdisciplinary, as reflected by the current University of Maine New Media faculty, whose backgrounds range from engineering to computer science to fine art to photojournalism to literature. Established faculties with ties to new media may signal themselves as exclusively critical or creative, as in the distinction between Art History and Studio Art, respectively. New media’s brief history, however, of-

ten requires its practitioners to develop a critical context for their own creative work. This is why the majority of first-generation new media critics are also artists [7]. It is also why new media research spans numerous genres, from critical essays to political activism to community-building to software design. New media faculties may profit by examining and borrowing criteria from practice-based departments such as journalism and architecture.

Limitations of Academic Journals

These differences may require evaluators of new media artist-researchers to look beyond the usual standards applicable in other disciplines. As noted by a 2003 National Academies report:

Because the field of [Information Technology and Creative Practices] is young and dynamic, ITCP production is hard to evaluate. Traditional review panels... may be hampered by their members’ ties to single disciplines and the absence of a time-tested consensus about what constitutes good work in ITCP and why [8].

Ironically, the National Academies study found that the highest benchmark for success in traditional academic departments, publication in peer-reviewed journals, is less relevant to success in new media—and empirically less an accurate measure of stature in the field—than more supple or timely forms of intellectual exposition:

The gold standard for academia—and the criterion most easily understood by parties outside a given subdiscipline—is the so-called archival journal (often published by scholarly or professional societies) that involves considerable editorial selection plus prepublication review and revision, which function as a screening system for quality. But the long lead time for such publications poses problems for subdisciplines in which timeliness—quickly getting an idea into the field—matters [9].

Leonardo journal (MIT Press) is as of this writing the only print journal with a longstanding track record as a peer-reviewed journal about new media. There is currently a new handful of peer-reviewed journals devoted to new media, such as *Leonardo Electronic Almanac* (Cambridge), *Fibreculture* (Sydney), *First Monday* (Chicago), *Vectors* (Los Angeles), and *Digital Creativity* (Copenhagen). Yet the field’s most prominent print publishers and research archivists [10] have acknowledged a 15–25 year lag and limited exposure that makes print publications far less relevant for new media research. Although promising new paradigms for

distributed publication are on the horizon, at the time of this writing these systems are only in the planning stage [11]. Finally, as the MLA warns, participation in electronic scholarship should not place extra demands on a researcher [12]; an accomplishment in new media research should *substitute for* a print article or monograph, not merely supplement them.

Alternative Recognition Measures

Given the accessibility and timeliness required for new media research, the following measures of recognition should be prioritized in the evaluation of new media research candidates:

1. Invited/Edited Publications

Invitations to publish in edited electronic journals or printed magazines and books should be recognized as the kind of peer influence that in other fields would be signaled by acceptance in peer-reviewed journals.

2. Live Conferences

The 2003 National Academies study concludes that conferences on new media, both face-to-face and virtual, offer a more useful and in some cases more prestigious venue for exposition than academic journals:

[The sluggishness of journal publications] is offset somewhat by a flourishing array of conferences and other forums, in both virtual and real space, that provide a sense of community and an outlet as well as feedback [13]... The prestige associated with presentations at major conferences actually makes some of them more selective than journals [14].

New forms of conference archiving—such as archived Webcasts—add value and exposure to the research presented at conferences.

3. Citations

Citations are a valuable and versatile measure of peer influence because they may come from or point to a variety of genres, from Web sites to databases to books in print. Examples include citations in:

- a. Electronic archives and recognition networks, such as the publicly accessible databases maintained by the Daniel Langlois Foundation (Montreal), the V2 organization (Rotterdam), the Database of Virtual Art (Berlin), and the Media Art Net database (Karlsruhe).
- b. Books, printed journals, and newspapers. These are easier to find now, thanks to Google Scholar, Google

Print, and Amazon's "look inside the book" feature.

- c. Syllabi and other pedagogical contexts. Google searches on .edu domains and citations of the author's work in syllabi from outside universities can measure the academic currency of an individual researcher or her ideas. In the sciences, readings or projects cited on a syllabus are likely to be popular textbooks, but in an emerging field such as new media, such recognition is a more valid marker of relevance.

4. Download/Visitor Counts

Downloads and other traffic-related statistics represent a measure of influence that has gained importance in the online community recently. As a 2005 open access study [15] concludes:

Whereas the significance of citation impact is well established, access of research literature via the Web provides a new metric for measuring the impact of articles—Web download impact. Download impact is useful for at least two reasons: (1) The portion of download variance that is correlated with citation counts provides an early-days estimate of probable citation impact that can begin to be tracked from the instant an article is made Open Access and that already attains its maximum predictive power after 6 months. (2) The portion of download variance that is uncorrelated with citation counts provides a second, partly independent estimate of the impact of an article, sensitive to another form of research usage that is not reflected in citations [16].

5. Impact in Online Discussions

Email discussion lists are the proving grounds of new media discourse. They vary greatly in tone and substance, but even the least moderated of such lists can subject their authors to rigorous—and at times withering—scrutiny [17]. Measures such as the number of list subscribers, geographic scope, the presence or absence of moderation, and the number of replies triggered by a given contribution can give a sense of the importance of each discussion list [18].

6. Impact in the Real World

While magazine columns and newspaper editorials may have little standing in traditional academic subjects, one of the strengths of new media are their relevance to a daily life that is increasingly inflected by the relentless proliferation of technologies. Even counting Google search returns on the author's name or statistically improbable phrases can be a measure of real-world impact [19]. By

privileging new media research with direct effect on local or global communities, the university can remain relevant in an age where much research takes place outside the ivory tower.

7. Net-Native Recognition Metrics

Peer-evaluated online communities may invent their own measures of member evaluation, in which case they may be relevant to a researcher who participates in those communities. Examples of such self-policing communities include Slashdot, The Pool, Open Theory, and the Distributed Learning Project. The MLA pins the responsibility for learning these new metrics on reviewers rather than the reviewed [20]. Given the mutability of such metrics, however, promotion and tenure candidates may be called upon to explain and give context to these metrics for their reviewers. Again, efforts to educate a scholar's colleagues about new media should be considered part of that scholar's research, not supplemental to it.

8. Reference Letters/Committees

Letters of recommendation from outside referees are an important compensation for the irrelevance of traditional recognition venues. Nevertheless, it is insufficient merely to solicit such letters from professors tenured in new media at other universities, since so few exist. More valuable is to use the measures outlined in this document to identify pre-eminent figures in new media, or to require new media promotion and tenure candidates to identify such figures and supply evidence that they qualify according to the criteria above. It has also been suggested that the membership of review committees for researchers in new media should also represent a balance of critical and creative experts with standing in both the academic and the outside world.

PART 3: CRITERIA BY CATEGORY

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The following criteria formulated by the University of Maine's New Media Department offer one example of how universities can adapt their standards of recognition to reflect the growing importance of electronic scholarship in the 21st century. Because of the rapid pace of innovation in electronic formats, this list must remain partial, since it is impossible to predict what new recognition mechanisms may be relevant a few years from now.

I. Teaching and Instructional Activities

New media pedagogy must be light on its feet to stay relevant. Below are some instructional activities that serve as important supplements to regular courses on the new media curriculum.

A. Other Teaching Activities

Independent Study, Directed Research, etc. (list by course number)

Because new media's tools and topics proliferate too quickly to be captured by any one curriculum, faculty are encouraged to teach independent studies when students want to explore research areas not on a current syllabus.

In addition, new media student and faculty projects often reach beyond the walls of the classroom into the real world. The new media program recognizes the value of directed research in which faculty involve students in outside collaborations for artistic or commercial purposes, as well as faculty members who facilitate students' exposure to or participation in national and international exhibitions, conferences, and other venues.

B. Curriculum and Course Development

1. Curriculum

During its building years, the new media program expects its faculty to contribute more to curriculum development than expected in other departments. This work may take the form of course proposals, curriculum proposals, or curriculum subcommittee membership.

2. Courses

Given the quick pace of new media evolution, the program recognizes exceptional value in developing courses that explore new pedagogies or emerging technologies.

It is understood that new media faculty may spend a significant portion of their research or course preparation time learning an emerging technology, such as a new programming language, with the understanding that such knowledge may lay the groundwork for future research or new courses. This groundwork is not "brushing up on skills," but experimenting with promising yet unproven systems, codes, or devices.

II. Research and Scholarly Activities

Good collaborators are critical to thriving research ecosystems. Candidates are encouraged to list any collaborative roles they have played in publications and other activities, such as conceptual architect, approach designer, release en-

gineer, or matchmaker (e.g., introducing two other researchers whose collaboration results in a publication). Each new media department may choose to weight these various roles according to its own priorities.

A. Publications

1. Books/Monographs

Networked or rich-media publications such as extended blogs, DVDs, or CD-ROMs should be included if they constitute a sustained investigation of a particular topic.

2. Refereed Journal Articles

In a new media context, a “closed peer-review” article includes invited contributions to edited print journals and networked journals. The format of these contributions may go beyond the form of a written essay to include podcasts, videoblogs, and other forms of archival media.

An “open peer-review” article includes contributions to self-policing publication networks, where the quality or relevance of contributions is subject to community debate and evaluation.

3. Chapters of Books/Monographs (please indicate if invited or juried)

Essays or chapters in edited volumes are more important in new media than the sciences, for these edited volumes establish standards for discourse in emergent subdisciplines of new media.

This category should also include invited contributions to edited, single-issue networked publications.

4. Edited Volumes

This category includes coordinating or managing a multi-user discussion list, whether accessible via email or Web.

This category also includes the conception, design, engineering, and/or editing of organized media collections, including film festivals, networked databases, and publications.

5. Technical Reports/Book Reviews

This category includes networked reports and reviews.

6. Other Publications (e.g., Editorials, Working Papers, etc.)

This category includes essays published to email lists, including all contributions to discussions sparked by the publication of that essay.

B. Creative Activities, Exhibitions, and Performance-Related Activities

(please indicate whether regional, international, national, solo, group, invited or juried)

1. Exhibitions

This category includes networked exhibitions hosted by brick-and-mortar institu-

tions or independent organizations, and can include online exhibitions as well as physical installations.

a. Participating

b. Curated

2. Performance Related Activities

This category includes political design, social software, and interactive performance.

3. Creative Writing and Poetry

This category includes literature in all its forms, both analogue and digital, in print or online.

C. Professional Presentations and Posters

(please indicate if regional, national, or international)

1. Conferences and Discussions organized

Researchers in new media at this point in its development are actively filling in gaps in the awareness of new media’s own history, a critical vocabulary, and other intellectual frameworks already in place in other fields. The new media program recognizes the value that organizing private and public events has for the field as a whole and, when local, for our students.

2. Presentations

As studies of new media have argued, presenting research at prestigious conferences can be more important than publishing it.

While there is no substitute for in-person gatherings, teleconferences are gradually becoming an important venue for conference presentations, though they vary in degree of formality and organization.

III. Service

A. Service to University

1. Department

As a fledgling program with a high student-to-teacher ratio, the new media program requires an unusual amount of innovation and labor from its faculty, which should be taken into consideration when evaluating faculty contributions to other areas.

2. University

Because new media promise to change the methods of many academic disciplines, faculty are encouraged to lend their voice to interdisciplinary committees and work with other departments to envision and develop programs that integrate new media into their own practices.

B. Service to the Public

(e.g., service on state commissions, public schools, civic groups, consulting, media interviews, public presentations)

New media can be especially effective in transforming local cultures as well as global ones. Faculty research in this area can be distinguished from traditional academic “service” by its innovative, activist, or performative character.

IV. Special Recognition/Awards/Honors Received

A. Press

Given the limitations of publishing new media research in academic journals, recognition from the press in the form of articles or interviews about a researcher’s work can be a valuable indicator of influence.

1. Print and Broadcast Press

This category includes outside sources such as general-interest newspapers, radio or TV spots, and specialized journals or magazines.

2. Electronic Press

This category includes articles in online journals as well as blogs.

B. Citations

Only general citations go here; citations to document the relevance and achievement of specific projects should accompany the entries on that research above.

1. Print Citations

Although they are not as timely as electronic citations, citations in books on new media can suggest a measure of a researcher’s influence and relevance to the field.

2. Electronic Citations

One measure of influence in academia can be suggested by citations in other university syllabi. (See the breakdown in Part 2.)

PART 4: NOTE FROM ROGER F. MALINA, LEONARDO EXECUTIVE EDITOR

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The problem discussed by Jon Ippolito is one that faces many young professionals in academic institutions internationally. Over the years we have been contacted by chairs of promotion and tenure committees at a number of institutions who want to understand whether Leonardo’s scholarly publications use peer review (they do), and what kind (we use single blind review). Yet traditional peer review is evolving in science and engineering, not only to take into account the proliferation of examples of fraud and plagiarism surviving peer review, but also to open up the process to counter obstacles to interdisciplinary scholarship.

We have been asked for impact and citation statistics (*Leonardo* is in the ISI

database). Yet, as pointed out by Ippolito, it is clear that many of the leading practitioners in rapidly changing interdisciplinary fields not only fall between the cracks of established evaluation systems but also are disseminating their work in new ways on-line that entirely escape assessment by existing metrics. I have been asked to write letters of recommendation taking into account authors' work in on-line communities such as Second Life and to comment on the "perceived value" of certain on-line conference venues and archives. Some of the most influential collections of texts and work in our fields have never seen the light of print.

In the sciences, a number of open-archive systems now co-exist with more traditional scholarly publishing business models. In neither the art-and-technology nor the new-media fields do such "evaluatable" open archive systems exist. Yet, it is possible for open archive systems to allow rapid dissemination while texts proceed through peer-reviewing systems. Leonardo Transactions, under Editor-in-Chief Ernest Edmonds, is one experiment in coupling an open archive with peer-review journal flow.

As indicated by Ippolito, we are interested in documenting in *Leonardo* various international approaches that develop "alternative evaluation criteria or metrics" to allow assessment of new modes of scholarly text dissemination and publication.

References and Notes

Unedited references as provided by authors.

1. ThoughtMesh by Jon Ippolito and Craig Dietrich, <<http://thoughtmesh.net>>, accessed 10 July 2007.
2. Re:Paik by John Bell, <<http://repaik.org>>, accessed 10 July 2007.
3. The ACLS recommends "policies for tenure and promotion that recognize and reward digital scholarship and scholarly communication; recognition should be given not only to scholarship that uses the humanities and social science cyberinfrastructure but also to scholarship that contributes to its design, construction, and growth.... We might expect younger colleagues to use new technologies with greater fluency and ease, but with tenure at stake, they will also be more risk-averse.... Senior scholars now have both the opportunity and the responsibility to take certain risks, first among which is to condone risk taking in their junior colleagues and their graduate students, making sure that such endeavors are appropriately rewarded." "Our Cultural Commonwealth," report by the ACLS Commission on Cyberinfrastructure for the Humanities and Social Sciences, 29 July 2006, <<http://www.acls.org/cyberinfrastructure/cyber.htm>>, accessed January 2, 2007.
4. "Departments and institutions should recognize the legitimacy of scholarship produced in new media, whether by individuals or in collaboration, and create procedures for evaluating these forms of scholarship." December 2006 report of the MLA Task Force on Evaluating Scholarship for Tenure and Pro-

motion, <http://www.mla.org/tenure_promotion>, accessed January 2, 2007.

5. "The Commission encourages each department on campus, as well as the University as a whole, to examine promotion and tenure criteria to recognize and reward innovative uses of technology in teaching, research and service.... The University needs to consider the criteria and standards used in the promotion and tenure process. The Commission encourages each department and the University as a whole to consider whether faculty efforts in this area are recognized, valued, and/or encouraged." November 2003 report of the University of Maine Commission on Information Technologies, accessed at <<http://www.umaine.edu/documents/CIT.pdf>> on May 2, 2004.
6. MLA Committee on Information Technology. "Guidelines for Evaluating Work with Digital Media in the Modern Languages." 20 May 2000. ADE Bulletin 132 (2002): 94–95. 82, mirrored at <http://www.mla.org/guidelines_evaluation_digital>, accessed 2 January 2007.
7. A brief sampling of new media theorist-practitioners and institutions they have been connected with includes Simon Biggs (Edinburgh), Matthew Fuller (Piet Zwart Institute), Mary Flanagan (Hunter), Alexander Galloway (NYU), Kenneth Goldberg (Berkeley), Eduardo Kac (Art Institute of Chicago), Natalie Jeremijenko (UCSD), Raphael Lozano-Hemmer (Karlstad University, Sweden), Lev Manovich (UCSD), Randall Packer (American University), Richard Rinehart (Berkeley), and Jeffrey Shaw (ZKM).
8. National Research Council, *Beyond Productivity: Information Technology, Innovation, and Creativity* (Washington, DC: The National Academies Press, 2003) pp. 8–9.
9. National Research Council [8] p. 188.
10. These estimates are from Roger Malina (Executive Editor of *Leonardo* journal) and the Daniel Langlois Foundation's Alain Depocas (Director of the Centre for Documentation + Research).
11. The Interarchive project is a possible model for distributed publication; see <<http://newmedia.umaine.edu/interarchive>>.
12. "Change in favor of a more capacious conception of scholarship, which we strongly endorse, should not mean ever-wider demands on faculty members, most especially those coming up for tenure and promotion." MLA Task Force on Evaluating Scholarship for Tenure and Promotion [4] p. 21.
13. National Research Council [8] pp. 8–9.
14. National Research Council [8] p. 188.
15. Tim Brody and Stevan Harnad, "Earlier Web Usage Statistics as Predictors of Later Citation Impact", <<http://eprints.ecs.soton.ac.uk/10647/>>, accessed 5 March 2005.
16. Kurtz, Michael J. (2004) "Restrictive access policies cut readership of electronic research journal articles by a factor of two," Harvard-Smithsonian Centre for Astrophysics, Cambridge, MA, <<http://opcit.eprints.org/feb190a/kurtz.pdf>>, pp. 1–2.
17. This recent [http://www.nettime.org/Lists-Archives/nettime-10504/msg00051.html] rejoinder by Morlock Elloi on the <nettime> list exemplifies the expectations of such online forums: If you have any past publications that might help me understand your point of view, I would gladly read them. While I understand that in paid-speaker-world the weight of the argument is computed as (volume of publications) × (number of speeches), on nettime and elsewhere closer to reality arguments stand for themselves.
18. Electronic and email texts also have a currency acknowledged by leading institutions in the field.

As of December 21, 2005, one of the premiere bibliographic indices in new media, the Langlois Foundation's CR+D database, included the following indexation for "Jon Ippolito": Author of 10 documents; Subject of 48 documents; Participant to 21 events; and Organizer of 2 events. Of the 10 documents by the author indexed, 1 is from an email list and 2 are parts of Web sites. In the case of artist and critic Alexander Galloway, the relevance of his online texts is even more striking: although by 2005 he was the author of several journal articles and an important book from MIT Press, the two documents that represented his writing in the CR+D database were *both* from email lists.

19. A statistically significant number of Google returns, e.g., >30, may be a necessary but insufficient condition for confirming global impact.

20. "In evaluating scholarship for tenure and promotion, committees and administrators must take responsibility for becoming fully aware both of the mechanisms of oversight and assessment that already govern the production of a great deal of digital scholarship and of the well-established role of new media in humanities research. It is of course convenient when electronic scholarly editing and writing are clearly analogous to their print counterparts. But when new media make new forms of scholarship possible, those forms can be assessed with the same rigor used to judge scholarly quality in print media. We must have the flexibility to ensure that, as new sources and instruments for knowing develop, the meaning of scholarship can expand and remain relevant to our changing times." MLA Task Force on Evaluating Scholarship for Tenure and Promotion [4] p. 46.

Manuscript received 16 August 2007.

Jon Ippolito's current projects—including the Variable Media Network, The Pool and ThoughtMesh—aim to expand the art world beyond its traditional preoccupations.

Joline Blais's projects include LongGreenHouse, a merging of the Wabanaki Longhouse, permaculture gardens and networked collaboration; the Cross-Cultural Partnership, a legal framework for sharing connected knowledge responsibly and sustainably; and At the Edge of Art, a book on strategies that empower new media artists to reshape the practice of art and beyond.

Owen F. Smith is an historian of alternative art forms, a producer of multiples and a digital and performance artist. His scholarly work has been published in numerous books and catalogs on Fluxus, Intermedia and related forms of creativity. His work as an artist has been exhibited throughout the U.S.A., Europe and Japan.

Steve Evans's writing and research focus on poetry and poetics, critical theory and the avant-garde. He runs the New Writing Series at the University of Maine, does projects with the National Poetry Foundation, and tends a web site, thirdfactory.net, devoted to contemporary poetry.

Nathan Stormer's principal research area is medical rhetoric about abortion. He also teaches and researches visuality and culture.

CALL FOR PAPERS

Nanotechnology, Nanoscale Science and Art

Leonardo Special Section

Guest Editors: Tom Rockwell and Tami I. Spector

Over the last decade, “nano” has become *the* buzzword signifying everything from imagined atomic-scale robotic utopias to small electronics. For scientists the shift toward nano has also become ubiquitous; what used to be referred to as “molecular” has been reframed as “nano,” 27 journals devoted to nanotech/nanoscience are now published, and the National Science Foundation and other granting agencies have devoted a significant amount of funding toward nanotech/nanoscience. Among engineers, scientists and science-studies scholars, discussions of the potential of nanotech/nanoscience abound, including conferences that debate the pros and cons of a nano-hegemony and attempt to debunk some of the hype. Artists, however, have only begun to explore this emergent scientific field, leaving it wide open for creative interpretation. With this special section of *Leonardo* we hope to ignite artists’ interest in the exploration of nanotech/nanoscience and encourage scientists, scholars and educators to contemplate the implications of an art-nanotech/nanoscience connection.

Leonardo, in collaboration with the Exploratorium under the auspices of the Nanotech Informal Science Education Network, will publish a series of special sections periodically over the next 5 years exploring the intersections of nanotech/nanoscience and art. We are especially seeking submissions of artworks (visual, performance, sound, etc.) with artists’ statements explaining the relationship of the work to nanotech/nanoscience; essays from scientists, engineers and scholars exploring the connection between nanotech/nanoscience and art; and essays and visuals aiming at nanotech/nanoscience education that uses the arts as a pedagogical tool.

Articles published to date as part of this special project include:

Tami I. Spector, “Introduction: Nanotechnology, Nanoscale Science and Art,” *Leonardo* 41, No. 4.

Filipe Rocha da Silva, “Nanoscale and Painting,” *Leonardo* 41, No. 4.

Boo Chapple with William Wong, “Can You Hear the Femur Play? Bone Audio Speakers at the Nanoscale,” *Leonardo* 41, No. 4.

Jane Bearinger, “Chaos Control on the Nanoscale,” *Leonardo* 41, No. 4.

Interested artists and authors are invited to send proposals, queries and/or manuscripts to the Leonardo editorial office: Leonardo, 211 Sutter St., Ste. 501, San Francisco, CA 94108, U.S.A. E-mail: <isast@leonardo.info>. Editorial Guidelines for Authors can be found at <www.leonardo.info>.

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