Final Performance Report

Grant # HC5001512
MITH-NEH-NLM Genomics Workshop
(Shared Horizons: Data, Biomedicine, and the Digital Humanities)
Project Director: Neil Fraistat

University of Maryland

August 30, 2013

Final Performance Report

The Maryland Institute for Technology in the Humanities (MITH), working in cooperation with the Office of Digital Humanities of the National Endowment for the Humanities, the National Library of Medicine of the National Institutes for Health, and the Research Councils UK, hosted a two-day symposium, April 9-11, 2013. The symposium had three main goals: (1) to address questions about collaboration, research methodologies, and the interpretation of evidence arising from the interdisciplinary opportunities in this burgeoning area of biomedical-driven humanities scholarship; (2) to investigate the current state of the field; and (3) to facilitate future research collaborations between the humanities and biomedical sciences. Awarded via a National Endowment for the Humanities Chairman's Cooperative Agreement, "MITH-NEH-NLM Genomics Workshop" (renamed in-house to the more descriptive title of "Shared Horizons: Data, BioMedicine, and the Digital Humanities") explored collaboration, research methodologies, and the interpretation of evidence arising from the interdisciplinary opportunities in this burgeoning area of biomedical-driven humanities scholarship.

Shared Horizons created opportunities for disciplinary cross-fertilization through a mix of formal and informal presentations combined with breakout sessions, all designed to promote a rich exchange of ideas about how large-scale quantitative methods can lead to new understandings of human culture. Bringing together researchers from the digital humanities and bioinformatics communities, the symposium explored ways in which these two communities might fruitfully collaborate on projects that bridge the humanities and medicine around the topics of sequence alignment and network analysis, two modes of analysis that intersect with "big data."

This seemed to be the right moment to bring these communities together. As Andrew Prescott, a symposium participant noted in a blog posting (cited below): "The digital humanities is potentially a bridgehead between the sciences and the arts and humanities, and *Shared Horizons* is one of the most exciting and ambitious attempts yet to realize this vision." Jeremy John, another symposium participant, wrote in a posting on the British Library's Digital Scholarship blog: "It felt like a special moment on the timeline of interdisciplinary research, and as its title hints it brought together active researchers from digital humanities and art technology centres, biochemistry laboratories, bioinformatics computational units, complex science and visualisation institutes, and notably medical and national libraries."

Audience:

The audience for Shared Horizons included digital humanists, biomedical scholars, information science scholars, and those working in "big data." The Symposium announcement was distributed to over four thousand scholars within the U.S. who had: 1) received funding from the NIH (based on identified keywords relating to workshop topics); 2) received funding from NEH related to big data; or 3) members of departments, colleges, schools, or research centers

that focus on digital humanities, bio-medicine, or big data. From that population we had over 100 applicants, and are pleased to report that we were able to select 38 first-rate attendees representing the United States and the United Kingdom. The attendee list included:

Last Name	First Name	Job/Position Title:	Institution or Organization Name:	Country:
Ananiadou	Sophia	Professor in Computer Science, University of Manchester Director of the National Centre for Text Mining (NaCTeM)	University of Manchester	USA
Bobley	Brett	Director, Office of Digital Humanities	National Endowment for the Humanities	Germany
Börner	Katy	Victor H. Yngve Professor of Information Science	Indiana University	USA
Brown	Travis	Assistant Director for Research and Development	Maryland Institute for Technology in the Humanities	USA
Caldera	Eva	Assistant Chairman	National Endowment for the Humanities	USA
Collins	Perry	Program Officer, Office of Digital Humanities	National Endowment for the Humanities	USA
DeDeo	Simon	Omidyar Fellow	Santa Fe Institute	UK
DuQuette	Laurie	Library Systems Admininstrator	National Library of Medicine	USA
Elsby	Stephen	Director, U.S. Office	Research Councils UK	USA
Ewing	Tom	Associate Dean for Research and Graduate Studies	Virginia Tech University	UK

Fraistat	Neil	Director	Maryland Institute for Technology in the Humanities	UK
Gerendasy	Dan	Chief, International Programs	National Library of Medicine	USA
Guiliano	Jennifer	Assistant Director	Maryland Institute for Technology in the Humanities	USA
Howe	Christopher	Professor of Plant and Microbial Biochemistry	University of Cambridge	USA
John	Jeremy Leighton	Scientific Curator, Manuscripts	British Library	USA
Kingsford	Carl	Associate Professor	Carnegie Mellon University	USA
Kirschenbaum	Matthew	Associate Director	Maryland Institute for Technology in the Humanities	USA
Kraus	Kari	Assistant Professor	University of Maryland	USA
Leonelli	Sabina	Senior Lecturer	University of Exeter	USA
Lindberg	Donald A.B.	Director	National Library of Medicine	USA
Lindberg	Mary		National Library of Medicine	UK
Muñoz	Trevor	Assistant Dean	University of Maryland Libraries	USA
Oard	Doug	Professor	University of Maryland	UK
Parks	Sheri	Associate Dean for Research, Interdisciplinary Scholarship, and Programming	University of Maryland	UK

Pinney	John	Research Fellow	Imperial College London	USA
Prescott	Andrew	Professor	King's College London	USA
Pue	A. Sean	Assistant Professor, Department of Liguistics and Germanic, Slavic, Asian, and African Languages	Michigan State University	USA
Rad	Samah	Doctoral Candidate, Computer Science	Virginia Tech University	USA
Rees	John	Archivist and Digital Resources Manager	National Library of Medicine	USA
Reznick	Jeffrey	Chief, History of Medicine Division	National Library of Medicine	USA
Savig	Erica	Ph.D. Candidate, Cancer Biology	Stanford University	UK
Schich	Maximilian	Associate Professor, Art and Technology	University of Texas Dallas	USA
Searls	David B.	Adjunct Associate Professor	University of Pennsylvania	USA
Serventi	Jennifer	Senior Program Officer, Office of Digital Humanities	National Endowment for the Humanities	USA
Teal	Tracy	Postdoctoral Researcher, Microbiology & Molecular Genetics	Michigan State University	USA
Walker	Christie	Program Director, Science in Culture Programme	Arts and Humanities Research Councils UK	USA
Wolfson	Adam	Assistant Chairman	National Endowment for	USA

			the Humanities	
Wurl	Joel	Senior Program Officer, Division of Preservation & Access	National Endowment for the Humanities	UK

The initial event was projected to take place entirely on the campus of the University of Maryland College Park. With the incorporation and support of the Research Councils UK, we were also able to hold a special event hosted by British Deputy Head of Mission, Mr. Philip Barton and the Research Councils UK at the Mission residence in downtown D.C. An additional ten attendees joined us for this special event including:

Last Name	First Name	Job/Position Title:	Institution or Organization Name:
Horton	Robert	Library Services, Discretionary Programs	Institute of Museum and Library Services
Richardson	Malcolm	Senior Partnership Officer	National Endowment for the Humanities
Rhody	Jason	Senior Program Officer, Office of Digital Humanities	National Endowment for the Humanities
Havemann	Judith	Director of Communications	National Endowment for the Humanities
Trus	Benes L.	Acting Director, NIH Division of Computational Bioscience	National Institutes of Health
Backus	Joyce	Associate Director for Library Operations	National Library of

			Medicine
Watson	Carole	Deputy Chairman	National Endowment for the Humanities
Wasley	Paula	Public Affairs	National Endowment for the Humanities
Marril	Jennifer	Chief, Technical Services Division	National Library of Medicine

Importantly, we were able to extend our audience beyond the limited number of in-person attendees supported by this project. MITH established a symposium website, a twitter hashtag, and a detailed publicity plan to garner public attention (see Appendix A: Publicity Plan). The publicity plan included biographical statements, headshots of all presenters, full-text press releases from the NEH and the National Library of Medicine at the National Institutes of Health, as well as information on social media and our keynote speaker, David B. Searls.

Within the realm of social media, 142 people were active prior to, during, and after the event using our twitter hashtag #DHBio. Those 142 people created 694 unique tweets that were retweeted 251 times. That also included 288 links to materials related to Digital Humanities, Biomedicine, and Big Data. Our audience was extended through public media as well. A full list of blog postings and news articles are listed under project products. We would like to especially highlight the article by Paul Voosen of the *Chronicle of Higher Education*, "The Beginning of a Beautiful Friendship? Biologists and Humanities Scholars Explore Digital Partnerships" (April 22, 2013: http://www.chronicle.com/article/BiologistsHumanities/138661/) that featured an extensive profile on the event, a subset of our attendees, and reported on the involvement of the NEH, NIH, and RCUK.

Additionally, we formed a Symposium Advisory Board representing leading scholars throughout the globe. Members included:

Erez Lieberman Aiden, Society of Fellows, Harvard University

Marti Hearst, School of Information, University of California, Berkeley

Erhard Heinrichs, Department of Linguistics, Eberhard-Karls-Universität Tübingen, Germany

Tim Hitchcock, Department of History, University of Hertfordshire, UK

Greg Crane, Department of Computer Science, University of Leipzig, Germany

Kari Kraus, iSchool and Department of English, University of Maryland

Carl Kingsford, Department of Computer Science, Carnegie Mellon University

Trevor Muñoz, University Libraries, University of Maryland

Doug Oard, iSchool and University of Maryland Institute for Advanced Computer Studies, University of Maryland

Mihai Pop, Department of Computer Science & the Center for Bioinformatics and Computational Biology, University of Maryland

The Advisory Board was also supported by our Research funding contributors. They worked with the project team to identify scholars, audiences, and media outlets for the Symposium in addition to providing advice about issues related to protocol and promotions. They are:

Brett Bobley, Director, Office of Digital Humanities, NEH

Jason Rhody, Senior Program Officer, Office of Digital Humanities, NEH

Jennifer Serventi, Senior Program Officer, Office of Digital Humanities, NEH

Perry Collins, Program Officer, Office of Digital Humanities, NEH

Jeffrey Reznick, Chief, History of Medicine Division, National Library of Medicine

Stephen Elsby, Director, U.S. Office, Research Councils UK

Christie Walker, Program Director, Science in Culture Programme, Arts and Humanities Research Councils UK

Tim Willis, Head, International and Science Outreach, Biotechnology and Biological Sciences Research Councils UK

Jenny Wilson, International Relations Manager, Biotechnology and Biological Sciences Research Councils UK

Project Activities:

As outlined below as of May 1, 2013, the Shared Horizons Symposium has met all goals within the allotted time. These goals were as follows: create a publicity plan, establish the symposium website, convene the advisory board, solicit suggestions for invited speakers, create, disseminate, and evaluate the open call for papers for the general public, select the keynote from the list of invited speakers, invite all speakers, confirm all logistical and travel details, contact media outlets, and gather all resources (bibliographies, presentations, etc) for dissemination on the Symposium website. These activities were handled with no significant problems with the exception of a few routine difficulties related to travel bookings and reimbursements. Our biggest glitch was the experimental use of an online evaluation form that we asked participants to fill out immediately after the conference. As we should have anticipated beforehand, almost no one responded. Lesson learned: make sure that evaluations are filled out onsite during the event. It was sufficiently clear that the Symposium was quite successful in realizing its goals, however, through (1) the intense, high-spirited engagement of it participants; (2) the appreciative comments made on social media, especially Twitter; (3) the comments made in person and in private emails to Fraistat and Guiliano; and (4) the subsequent activity of participants (for which, see below). For a thorough, thoughtful, and appreciative review of "Shared Horizons" from one of its participants, see the blog posting by Jeremy John: http://britishlibrary.typepad.co.uk/digital-scholarship/about-this-blog.html/.

In that posting, John describes the range of the Symposium by juxtaposing its first and last presentation: "The first was by a historian, Tom Ewing, who has been employing segmentation and network analyses to understand the relationship between newspaper reporting on influenza and the spread of the disease virus itself. The last was by a mathematical physicist, Simon DeDeo, who highlighted coarse-graining, renormalisation and semantic analysis in identifying the key junctures in the history of the Old Bailey's (Central Criminal Court of England and Wales) verdicts over the centuries, a possible route to assessing judicial procedures." Below we provide a detailed record of the Agenda, with abstracts for the main presentations, to enable a more fine-grained understanding of what transpired.

Symposium Agenda:

Wednesday, April 10, 2013
5:30-7:30 pm Welcome Reception
Hosted by the British Deputy Head of Mission, Mr. Philip Barton, and the Research Councils UK, British Embassy, Deputy's Residence

Thursday, April 11, 2013
Location:
6137 McKeldin Library
Special Events Room, 6th Floor
University of Maryland

Day 1: Network Analysis
9:00-9:15   **Welcome and overview of desired outcomes**
Neil Fraistat, Director, Maryland Institute for Technology in the Humanities, University of Maryland

9:15-10:00   **Session 1: History and Theory of the Cross-over**
John Unsworth, Vice Provost for Library & Technology Services and Chief Information Officer, Brandeis University

"Biology asks six kinds of questions," says Joel Cohen: "How is it built? How does it work? What goes wrong? How is it fixed? How did it begin? What is it for?" The humanities ask substantially the same questions, at a different scale. These are questions that historically have been answered, in both fields, by human observation and description, but as data becomes big enough, these questions can also be answered statistically. There is an interesting statistical thread that connects the humanities to biology, and it is the same thread that connects biology to physics, namely "ensemble" approaches to modeling and prediction. The concept of the "ensemble" in statistics, in social science, in physics, in biology, in performance, and in linguistics gives us a rich metaphor for our two-day discussion of the ways that big data is changing the humanities and the life sciences, and what they might have to learn from one another.

10-10:45   **Session 2: Infectious Reporting: Network Analysis of the 1918 Influenza Epidemic Using Historical Newspapers**
Tom Ewing, Associate Dean for Research and Graduate Studies, Virginia Tech University

Naren Ramakrishnan, Professor, Computer Science, Virginia Tech University
Samah Gad, Doctoral Candidate, Computer Science, Virginia Tech University

Infectious Reporting: Network Analysis of the 1918 Influenza illustrates the potential for collaboration among scholars in the digital humanities and biomedical sciences by applying large-scale quantitative tools to understand the social impact of disease. Drawing on a corpus of digitized newspapers from more than sixty American cities, this presentation explores the intensification in the flow of information with the shift from early reports of distant cases to later reports of local outbreaks. Using the methods of network analysis, ranging from characterizing graphs (degree distributions, clustering coefficients) to mining properties (e.g., communities, weak ties, bridges) to detecting key aspects of their temporal and spatial evolution (e.g., compartmentalization, redistribution, and coalescing of nodes), makes it possible to build upon, and enhance, traditional humanities approaches to human culture that use close reading of selected texts to interpret historical experiences and identify meaningful patterns.

10:45-11:30   Mining, Mapping, and Accelerating Scholarly Networks
Katy Börner, Victor H. Yngve Professor of Information Science, Indiana
        University

Recent developments in data mining, information visualization, and science of science studies make it possible to study science and technology (S&T) at multiple levels using a systems science approach. At the micro-level, the impact of single individuals, specific works, or legal frameworks can be examined. At the meso-level, the expertise profiles of institutions can be compared or the trajectories of student cohorts can be modeled. The macro-level provides a 10,000 foot view of the continuously evolving geospatial and topical landscape of science and technology and the global import/export activities, innovation diffusion, and brain drain unfolding over both spaces. Relevant works and maps are featured in the international Places & Spaces: Mapping Science exhibit (http://scimaps.org) and the *Atlas of Science* (http://scimaps.org/atlas). The first part of this talk will present research results and case studies that aim to increase our scientific understanding of scholarly networks. The second part introduces approaches and tools that improve information access, researcher networking, and research management. The talk concludes with an overview of data services and plug-and-play macroscope tools and tutorials developed at the Cyberinfrastructure for Network Science Center in support of data mining and visualization.

Relevant Links
VIVO National Researcher Network: http://vivoweb.org
Scholarly Database serving 26 million records: http://sdb.cns.iu.edu
Plug-and-Play Macroscope Tools: http://cishell.org
Information Visualization MOOC: http://ivmooc.cns.iu.edu

11:30-11:45   Break

11:45-12:30   Session 3: Common Design Strategies for Exploring Intellectual Geographies in History and Cell Motility in Biology
Nicole Coleman, co-Director, Humanities + Design, Stanford University
Erica Savig, Doctoral Candidate, Cancer Biology, Stanford University

Common Design Strategies for Exploring Intellectual Geographies in History and Cell Motility in Biology describes approaches to multi-scalar analysis of data being developed at once in cancer biology research and historical research on intellectual networks using remarkably similar approaches based on the manipulation of spatial, temporal and relational dynamics in systems to provide data in context. We present a shared principle that guides the design of visualizations for data exploration in our respective projects – that of embedding subjective user-specific perspectives on the data using examples from each project that explain the benefits compared to alternative strategies, particularly for offering an understanding of the multi-scalar systems nature of the data. We will address the negotiation between the open views offered by completely objective and generically represented data with the harnessing of the user's potentials for intuitive interpretation when the data is viewed slightly through representations of their subjective lens. Lastly, we discuss new directions for each project that build off of this principle to engage the researcher in data modeling for further analysis.

12:30-1:45   Lunch (with a matchmaking session for participants and attendees)

1:45-2:45   Breakout Sessions (problems, issues, developments)

2:15-2:45   Break

2:45-3:45   Round Table: Synthesizing and Discussing Future Directions
Facilitated by: Sheri Parks, Associate Dean for Research, Interdisciplinary Scholarship, and Programming, College of Arts and Humanities, University of Maryland

6:00-7:00   **Keynote Lecture** *(open for general admission)*
With a Wild Surmise: Intimations of Computational Biology in Keats, Carroll, and Joyce
David B. Searls, Adjunct Associate Professor of Genetics, University of
   Pennsylvania

"With a Wild Surmise: Intimations of Computational Biology in Keats, Carroll, and Joyce" posits that key elements of the literary genres of Romanticism, Victorian nonsense literature, and Modernism prefigured both challenges and methodologies of twenty-first-century computational biology. Drawing on examples from John Keats for systems biology, Lewis Carroll for sequence analysis, and James Joyce for text mining, this keynote will offer insights into the cross-analytical possibilities of literary criticism and bioinformatics.

Friday, April 12, 2013
Location:
Cafritz Theatre
Clarice Smith Performing Arts Center
University of Maryland

Day 2: Sequence Alignment
9:00-9:15   **Review and introduction to Day 2**

9:15-10:00   **Session 2: Bioinformatic Approaches to the Computational Analysis of the Poetic**
A. Sean Pue, Assistant Professor, Department of Liguistics and Germanic,
   Slavic, Asian, and African Languages, Michigan State University
Tracy K. Teal, Postdoctoral Researcher, Microbiology & Molecular Genetics,
   Michigan State University
C. Titus Brown, Assistant Professor, Microbiology & Molecular Genetics,
   Michigan State University

This presentation explores how bioinformatic approaches to sequence analysis can be harnessed in the computational scansion of poetry with an eye towards large data sets. Poetic meter exists in a written text as a pattern to be recognized, and computational prosody therefore shares many similarities with sequence analysis and multiple sequence alignment where general patterns are sought, despite substitutions, frame shifts and mismatches. The focus of this

presentation is the meter of Urdu poetry, which like other languages of South Asia and the Middle East is based on syllable length rather than stress.

10:00-10:45 **Retrospective Science and Scholarship: Some Perspectives and Tools from Phylogenetics and Digital Forensics**
Jeremy Leighton John, Scientific Curator, British Library

Both phylogenetics and digital forensics are concerned with reconstructing the past from information existing in the present, and can be seen as manifestations of a family of retrospective sciences including palaeontology, geology and astronomy, which in turn may be allied with scholarly endeavours such as comparative linguistics, stemmatic analysis, archaeological interpretation and even history itself. The significance of retrospective analysis has been identified and highlighted in fields such as semiotics, literary works such as Zadig of Voltaire, ancient folklore, and the processes of tracking and inference practiced by hunters today and in the prehistoric past. In a notable and pioneering paper the evolutionary biologist Thomas Huxley outlined in the 19th century some of the logic and notions of retrospection. The talk will first explore some of the parallels and shared principles of phylogenetics and digital forensics; second, it will briefly highlight the potential of phylogenetics not only with variant objects such as drafts of a piece of writing but also variant collections of objects (or very complex objects) such as entire personal archives; and third, it will illustrate how a combination of phylogenetic and forensic tools might and can be used in practice to further digital scholarship and curatorship.

10:45-11:15 **Break**

11:15-12:00 **Session 3: Cultural Interaction**
Maximilian Schich, Associate Professor, Art and Technology, University of Texas, Dallas

In a co-authored project with physicists László Barabási and Dirk Helbing, we currently map, analyze, and model 2000 years of cultural interaction between 57,000 birth and death places of 153,000 notable individuals. We use a complex network approach to characterize the system as a whole and also develop 'cultural fitness trajectories' for individual cultural centers that are visualized with a paradigm inspired by literature on gene expression. These 'expression trajectories' can be aligned, like sequences of genes or characters, to find correlations within and across timelines. In the project we also use Google Ngrams, looking at documented time as opposed to document date, with

intriguing auxiliary results pointing to outstanding historic events. A key result is to integrate global, medium, and local level perspectives of inquiry into culture. This presentation will exemplify the viability of a systems approach to cultural interaction, outline the shared problem space in both practice and theory, and tie the approach to related areas in arts, humanities, computer science, and physics.

12-1:00   **Lunch**

1:00-1:45   **The Poem that Makes Things Happen: Diachronic Informatics, Effective Subjects, and the English Common Law**
Simon DeDeo, Omidyar Fellow, Santa Fe Institute

The English Common Law is both a method of rule and an autonomous cultural process; nearly two billion people fall under its jurisdiction today. An analysis of the semantic structure of trial transcripts at a critical point in its evolution---19th Century London---uncovers the persistent and slowly-changing structures of its change. These "effective subjects" are often oblique to boundaries between officially-recognized categories that one might draw by hand. Such an analysis requires that we address a critical question for the extension of bioinformatics to the study of human social systems: the existence of durable records that span hundreds or even thousands of years. In contrast, biological information at the molecular level is fragile and, more often than not, extracted from still-living or just-deceased organisms. "Diachronic Informatics" integrates methods from sequence alignment and the analysis of synchronic big data, such as the Human Genome Project, with tools from the paleontological sciences, whose insights draw on deep-time records of phenotypic variation.

1:45-2:15   **Break**

2:15-3:15   **Breakout Sessions (problems, issues, developments)**

3:15-4:30   **Round Table: Synthesizing the Breakout Sessions and Discussing Future Directions**
Facilitated by: Kari Kraus, Assistant Professor, College of Information Studies
            and the Department of English, University of Maryland

4:45-5:30   **Lessons Learned and Future Directions**
Facilitated by: Brett Bobley, Director, Office of Digital Humanities, National
            Endowment for the Humanities

Jeffrey Reznick, Chief, History of Medicine Division, National Library of Medicine, National Institutes of Health

6:30-8:00   Symposium Dinner

Location:
Prince George's Room
Stamp Student Union

Longer Term Impact
It is perhaps too early to know what the long term impact of "Shared Horizons" will be. We have succeeded in bringing widespread attention to the potential intersections between Digital Humanities and Bioinformatics, assembled several related resources, and begun a number of promising conversations among participants about future joint efforts. As you'll see in the Project Products section immediately below, there has already been one published article that benefited from lead author Tom Ewing's participation in "Shared Horizons." Maximilian Schich, another participant, has successfully proposed that a special section of MIT University Press's journal *Leonardo* be devoted to papers emerging from the Symposium; he'll be editing this section for publication in 2014. Participant Simon DeDeo, who sits on the Advisory Board of Princeton University Press's Primers in Complexity Series, is exploring the idea of a Primer devoted to Digital Humanities and Bioinformatics as a follow up to the Symposium. And participant Andrew Prescott has proposed a new Special Interest Group on "Biomedicine and the Digital Humanities" for the international Alliance of Digital Humanities Organizations (ADHO). We have, in other words, put a number of initiatives into motion that may yield important results. The National Library of Medicine has expressed interest in holding a follow up symposium or workshop, which we think would be a fruitful way of building upon the important momentum built by "Shared Horizons."

Project Products

Articles:

E. Thomas Ewing, Naren Ramakrishnan, and Samah Gad, "Gaining Insights into Epidemics by Mining Historical Newspapers." *Computer IEEE* Vol. 46, No. 6 (June 2013), pp. 68-73. (pdf) (journal)

Forthcoming in 2014: A Special Section in the journal *Leonardo* (published by MIT Press) that will be devoted to select Shared Horizons presentations and edited by Shared Horizons participant Maximilian Schich.

Presentation Materials:

Infectious Reporting: Network Analysis of the 1918 Influenza Epidemic Using Historical Newspapers
Tom Ewing, Associate Dean for Research and Graduate Studies, Virginia Tech University
Naren Ramakrishnan, Professor, Computer Science, Virginia Tech University
Samah Gad, Doctoral Candidate, Computer Science, Virginia Tech University
View a PDF of the presentation.

Mining, Mapping, and Accelerating Scholarly Networks
Katy Börner, Victor H. Yngve Professor of Information Science, Indiana University
View a PDF for the presentation slides.

Common Design Strategies for Exploring Intellectual Geographies in History and Cell Motility in Biology
Nicole Coleman, co-Director, Humanities + Design, Stanford University
Erica Savig, Doctoral Candidate, Cancer Biology, Stanford University
View a PDF of the presentation.

Breakout Session Materials:
Network Analysis Notes Document
Network Analysis Ideas Poll

Perspectives from the UK
Christopher Howe
Sabina Leonelli

With a Wild Surmise: Intimations of Computational Biology in Keats, Carroll, and Joyce
David B. Searls, Adjunct Associate Professor of Genetics, University of Pennsylvania
View a Powerpoint Slideshow of the presentation.

Bioinformatic Approaches to the Computational Analysis of the Poetic
A. Sean Pue, Assistant Professor, Department of Liguistics and Germanic, Slavic, Asian, and African Languages, Michigan State University
Tracy K. Teal, Postdoctoral Researcher, Microbiology & Molecular Genetics, Michigan State University
C. Titus Brown, Assistant Professor, Microbiology & Molecular Genetics,Michigan State University
View a PDF of the presentation slides.

Retrospective Science and Scholarship: Some Perspectives and Tools from Phylogenetics and Digital Forensics
Jeremy Leighton John, Curator of eMss, British Library
View a PDF of the presentation slides.

The Poem that Makes Things Happen: Diachronic Informatics, Effective Subjects, and the English Common Law
Simon DeDeo, Omidyar Fellow, Santa Fe Institute
View a PDF of the presentation slides.

We also welcome you to enjoy two posts from Andrew Prescott's personal blog.
Shared Horizons
Thinking about Florescent Bunnies

Additional Press Received:

Brett Bobley, Featured Project: Shared Horizons: Data, Biomedicine, and the Digital Humanities Blog. http://www.neh.gov/divisions/odh/featured-project/shared-horizons-data-biomedicine-and-the-digital-humanities. August 6, 2012

Erin Mosley, National Humanities Alliance Email and Webposting: "Shared Horizons: Data, Biomedicine, and the Digital Humanities" Symposium Scheduled for April 10-12. http://www.nhalliance.org/news/shared-horizons-data-biomedicine-and-the-digital-h.shtml. August 10, 2012

Donna Kafel, e-Science Community blog: http://esciencecommunity.umassmed.edu/ai1ec_event/shared-horizons-data-biomedicine-and-the-digital-humanities-symposium/?instance_id=. August 7, 2012

ResearchRaven.com announcement: www.researchraven.com/files/pdfs/call-for-papers-conference/2012/11/10/call-for-papers-shared-horizons-data-biomedicine-and-the-digital-humanities-symposium.pdf
ResearchRaven.com is a free public service listing of announcements of professional conferences, calls for papers and research-related materials in the health sciences and related fields.

Medical Sociology Guide: http://www.medicalsociologyguide.com/2012/08/nlm-to-participate-with-partners-in-shared-horizons-data-biomedicine-and-the-digital-humanities-symposium/

Knowledge Speak: a Guide for the STM Publishing Community: http://www.knowledgespeak.com/forward.asp?newsID=16119

Digital Scholarship Blog, British Library. "Biohumanities Symposium at the University of Maryland." Posting by Jeremy John. http://britishlibrary.typepad.co.uk/digital-scholarship/about-this-blog.html

Personal Blogs:

Mariusz Leś: http://marmacles.edublogs.org/2012/08/08/shared-horizons-data-biomedicine-and-the-digital-humanities/

Tom Elliott, Electra Atlantis: Digital Approaches to Antiquity: http://planet.atlantides.org/electra/

Bradley Keelor:

Shared Horizons – Is it cutting-edge science when you can't find a joke about it on the web?

http://blogs.fco.gov.uk/partnersinscience/2013/05/09/shared-horizons-is-it-cutting-edge-science-when-you-cant-find-a-joke-about-it-on-the-web/

Appendix A: Publicity Plan

Shared Horizons: Data, Biomedicine, and the Digital Humanities

Introduction

The Maryland Institute for Technology in the Humanities (MITH), working in cooperation with the Office of Digital Humanities of the National Endowment for the Humanities, the National Library of Medicine of the National Institutes for Health, and the Research Councils UK, will host a two-day symposium to: (1) address questions about collaboration, research methodologies, and the interpretation of evidence arising from the interdisciplinary opportunities in this burgeoning area of biomedical-driven humanities scholarship; (2) to investigate the current state of the field; and (3) to facilitate future research collaborations between the humanities and biomedical sciences.

Awarded via a National Endowment for the Humanities Chairman's Cooperative Agreement, Shared Horizons: Data, BioMedicine, and the Digital Humanities will explore collaboration, research methodologies, and the interpretation of evidence arising from the interdisciplinary opportunities in this burgeoning area of biomedical-driven humanities scholarship.

Shared Horizons will create opportunities for disciplinary cross-fertilization through a mix of formal and informal presentations combined with breakout sessions, all designed to promote a rich exchange of ideas about how large-scale quantitative methods can lead to new understandings of human culture. Bringing together researchers from the digital humanities and bioinformatics communities, the symposium will explore ways in which these two communities might fruitfully collaborate on projects that bridge the humanities and medicine around the topics of sequence alignment and network analysis, two modes of analysis that intersect with "big data."

Symposium Agenda:

Wednesday, April 10, 2013
5:30-7:30 pm Welcome Reception
> Hosted by the British Deputy Head of Mission, Mr. Philip Barton, and the Research Councils UK, British Embassy, Deputy's Residence

Thursday, April 11, 2013
Location:
6137 McKeldin Library
Special Events Room, 6th Floor
University of Maryland

Day 1: Network Analysis
9:00-9:15   Welcome and overview of desired outcomes
                 Neil Fraistat, Director, Maryland Institute for Technology in the Humanities,
                        University of Maryland

9:15-10:00   Session 1: History and Theory of the Cross-over
                  John Unsworth, Vice Provost for Library & Technology Services and Chief
                         Information Officer, Brandeis University

                 "Biology asks six kinds of questions," says Joel Cohen: "How is it built? How
                 does it work? What goes wrong? How is it fixed? How did it begin? What is it
                 for?" The humanities ask substantially the same questions, at a different scale.
                 These are questions that historically have been answered, in both fields, by
                 human observation and description, but as data becomes big enough, these
                 questions can also be answered statistically. There is an interesting statistical
                 thread that connects the humanities to biology, and it is the same thread that
                 connects biology to physics, namely "ensemble" approaches to modeling and
                 prediction. The concept of the "ensemble" in statistics, in social science, in
                 physics, in biology, in performance, and in linguistics gives us a rich metaphor
                 for our two-day discussion of the ways that big data is changing the humanities
                 and the life sciences, and what they might have to learn from one another.

**10-10:45   Session 2: Infectious Reporting: Network Analysis of the 1918 Influenza
                 Epidemic Using Historical Newspapers**
                 Tom Ewing, Associate Dean for Research and Graduate Studies, Virginia
                        Tech University
                 Naren Ramakrishnan, Professor, Computer Science, Virginia Tech University
                 Samah Gad, Doctoral Candidate, Computer Science, Virginia Tech University

                 Infectious Reporting: Network Analysis of the 1918 Influenza illustrates the
                 potential for collaboration among scholars in the digital humanities and
                 biomedical sciences by applying large-scale quantitative tools to understand the
                 social impact of disease. Drawing on a corpus of digitized newspapers from
                 more than sixty American cities, this presentation explores the intensification in

the flow of information with the shift from early reports of distant cases to later reports of local outbreaks. Using the methods of network analysis, ranging from characterizing graphs (degree distributions, clustering coefficients) to mining properties (e.g., communities, weak ties, bridges) to detecting key aspects of their temporal and spatial evolution (e.g., compartmentalization, redistribution, and coalescing of nodes), makes it possible to build upon, and enhance, traditional humanities approaches to human culture that use close reading of selected texts to interpret historical experiences and identify meaningful patterns.

10:45-11:30   Mining, Mapping, and Accelerating Scholarly Networks
Katy Börner, Victor H. Yngve Professor of Information Science, Indiana
        University

Recent developments in data mining, information visualization, and science of science studies make it possible to study science and technology (S&T) at multiple levels using a systems science approach. At the micro-level, the impact of single individuals, specific works, or legal frameworks can be examined. At the meso-level, the expertise profiles of institutions can be compared or the trajectories of student cohorts can be modeled. The macro-level provides a 10,000 foot view of the continuously evolving geospatial and topical landscape of science and technology and the global import/export activities, innovation diffusion, and brain drain unfolding over both spaces. Relevant works and maps are featured in the international Places & Spaces: Mapping Science exhibit (http://scimaps.org) and the *Atlas of Science* (http://scimaps.org/atlas). The first part of this talk will present research results and case studies that aim to increase our scientific understanding of scholarly networks. The second part introduces approaches and tools that improve information access, researcher networking, and research management. The talk concludes with an overview of data services and plug-and-play macroscope tools and tutorials developed at the Cyberinfrastructure for Network Science Center in support of data mining and visualization.

Relevant Links
VIVO National Researcher Network: http://vivoweb.org
Scholarly Database serving 26 million records: http://sdb.cns.iu.edu
Plug-and-Play Macroscope Tools: http://cishell.org
Information Visualization MOOC: http://ivmooc.cns.iu.edu

11:30-11:45   Break

11:45-12:30   **Session 3: Common Design Strategies for Exploring Intellectual Geographies in History and Cell Motility in Biology**
Nicole Coleman, co-Director, Humanities + Design, Stanford University
Erica Savig, Doctoral Candidate, Cancer Biology, Stanford University

Common Design Strategies for Exploring Intellectual Geographies in History and Cell Motility in Biology describes approaches to multi-scalar analysis of data being developed at once in cancer biology research and historical research on intellectual networks using remarkably similar approaches based on the manipulation of spatial, temporal and relational dynamics in systems to provide data in context. We present a shared principle that guides the design of visualizations for data exploration in our respective projects – that of embedding subjective user-specific perspectives on the data using examples from each project that explain the benefits compared to alternative strategies, particularly for offering an understanding of the multi-scalar systems nature of the data. We will address the negotiation between the open views offered by completely objective and generically represented data with the harnessing of the user's potentials for intuitive interpretation when the data is viewed slightly through representations of their subjective lens. Lastly, we discuss new directions for each project that build off of this principle to engage the researcher in data modeling for further analysis.

12:30-1:45   **Lunch (with a matchmaking session for participants and attendees)**

1:45-2:45   **Breakout Sessions (problems, issues, developments)**

2:15-2:45   **Break**

2:45-3:45   **Round Table: Synthesizing and Discussing Future Directions**
Facilitated by: Sheri Parks, Associate Dean for Research, Interdisciplinary Scholarship, and Programming, College of Arts and Humanities, University of Maryland

6:00-7:00   **Keynote Lecture** *(open for general admission)*
With a Wild Surmise: Intimations of Computational Biology in Keats, Carroll, and Joyce
David B. Searls, Adjunct Associate Professor of Genetics, University of Pennsylvania

"With a Wild Surmise: Intimations of Computational Biology in Keats, Carroll, and Joyce" posits that key elements of the literary genres of Romanticism, Victorian nonsense literature, and Modernism prefigured both challenges and methodologies of twenty-first-century computational biology. Drawing on examples from John Keats for systems biology, Lewis Carroll for sequence analysis, and James Joyce for text mining, this keynote will offer insights into the cross-analytical possibilities of literary criticism and bioinformatics.

Friday, April 12, 2013
Location:
Cafritz Theatre
Clarice Smith Performing Arts Center
University of Maryland

Day 2: Sequence Alignment
9:00-9:15   Review and introduction to Day 2

9:15-10:00   Session 2: Bioinformatic Approaches to the Computational Analysis of the Poetic
A. Sean Pue, Assistant Professor, Department of Liguistics and Germanic, Slavic, Asian, and African Languages, Michigan State University
Tracy K. Teal, Postdoctoral Researcher, Microbiology & Molecular Genetics, Michigan State University
C. Titus Brown, Assistant Professor, Microbiology & Molecular Genetics, Michigan State University

This presentation explores how bioinformatic approaches to sequence analysis can be harnessed in the computational scansion of poetry with an eye towards large data sets. Poetic meter exists in a written text as a pattern to be recognized, and computational prosody therefore shares many similarities with sequence analysis and multiple sequence alignment where general patterns are sought, despite substitutions, frame shifts and mismatches. The focus of this presentation is the meter of Urdu poetry, which like other languages of South Asia and the Middle East is based on syllable length rather than stress.

10:00-10:45   Retrospective Science and Scholarship: Some Perspectives and Tools from Phylogenetics and Digital Forensics
Jeremy Leighton John, Scientific Curator, British Library

Both phylogenetics and digital forensics are concerned with reconstructing the past from information existing in the present, and can be seen as manifestations of a family of retrospective sciences including palaeontology, geology and astronomy, which in turn may be allied with scholarly endeavours such as comparative linguistics, stemmatic analysis, archaeological interpretation and even history itself. The significance of retrospective analysis has been identified and highlighted in fields such as semiotics, literary works such as Zadig of Voltaire, ancient folklore, and the processes of tracking and inference practiced by hunters today and in the prehistoric past. In a notable and pioneering paper the evolutionary biologist Thomas Huxley outlined in the 19th century some of the logic and notions of retrospection. The talk will first explore some of the parallels and shared principles of phylogenetics and digital forensics; second, it will briefly highlight the potential of phylogenetics not only with variant objects such as drafts of a piece of writing but also variant collections of objects (or very complex objects) such as entire personal archives; and third, it will illustrate how a combination of phylogenetic and forensic tools might and can be used in practice to further digital scholarship and curatorship.

10:45-11:15   **Break**

11:15-12:00   **Session 3: Cultural Interaction**
Maximilian Schich, Associate Professor, Art and Technology, University of Texas, Dallas

In a co-authored project with physicists László Barabási and Dirk Helbing, we currently map, analyze, and model 2000 years of cultural interaction between 57,000 birth and death places of 153,000 notable individuals. We use a complex network approach to characterize the system as a whole and also develop 'cultural fitness trajectories' for individual cultural centers that are visualized with a paradigm inspired by literature on gene expression. These 'expression trajectories' can be aligned, like sequences of genes or characters, to find correlations within and across timelines. In the project we also use Google Ngrams, looking at documented time as opposed to document date, with intriguing auxiliary results pointing to outstanding historic events. A key result is to integrate global, medium, and local level perspectives of inquiry into culture. This presentation will exemplify the viability of a systems approach to cultural interaction, outline the shared problem space in both practice and theory, and tie the approach to related areas in arts, humanities, computer science, and physics.

12-1:00   **Lunch**

1:00-1:45   **The Poem that Makes Things Happen: Diachronic Informatics, Effective Subjects, and the English Common Law**
Simon DeDeo, Omidyar Fellow, Santa Fe Institute

The English Common Law is both a method of rule and an autonomous cultural process; nearly two billion people fall under its jurisdiction today. An analysis of the semantic structure of trial transcripts at a critical point in its evolution---19th Century London---uncovers the persistent and slowly-changing structures of its change. These "effective subjects" are often oblique to boundaries between officially-recognized categories that one might draw by hand. Such an analysis requires that we address a critical question for the extension of bioinformatics to the study of human social systems: the existence of durable records that span hundreds or even thousands of years. In contrast, biological information at the molecular level is fragile and, more often than not, extracted from still-living or just-deceased organisms. "Diachronic Informatics" integrates methods from sequence alignment and the analysis of synchronic big data, such as the Human Genome Project, with tools from the paleontological sciences, whose insights draw on deep-time records of phenotypic variation.

1:45-2:15   **Break**

2:15-3:15   **Breakout Sessions (problems, issues, developments)**

3:15-4:30   **Round Table: Synthesizing the Breakout Sessions and Discussing Future Directions**
Facilitated by: Kari Kraus, Assistant Professor, College of Information Studies and the Department of English, University of Maryland

4:45-5:30   **Lessons Learned and Future Directions**
Facilitated by: Brett Bobley, Director, Office of Digital Humanities, National Endowment for the Humanities
Jeffrey Reznick, Chief, History of Medicine Division, National Library of Medicine, National Institutes of Health

6:30-8:00   **Symposium Dinner**
Location:
Prince George's Room
Stamp Student Union

Keynote Speaker

"With a Wild Surmise: Intimations of Computational Biology in Keats, Carroll, and Joyce" posits that key elements of the literary genres of Romanticism, Victorian nonsense literature, and Modernism prefigured both challenges and methodologies of twenty-first-century computational biology. Drawing on examples from John Keats for systems biology, Lewis Carroll for sequence analysis, and James Joyce for text mining, this keynote will offer insights into the cross-analytical possibilities of literary criticism and bioinformatics.

David B. Searls was until recently a Senior Vice President at GlaxoSmithKline, where he led the bioinformatics group for 13 years. He is now an independent consultant and serves on a number of scientific advisory boards. He holds an adjunct appointment at the University of Pennsylvania, USA, where he was formerly Research Associate Professor of Genetics. He received undergraduate degrees in Life Sciences and Philosophy from the Massachusetts Institute of Technology, U.S.A., a Ph.D. in biology from the Johns Hopkins University, Maryland, U.S.A., and an MSE in computer science from the University of Pennsylvania. His research interests include systems biology, macromolecular linguistics and data integration. For more information including a list of recent publications, please visit his academic homepage.

Biographical Statements

Presenters and Facilitators

Brett Bobley is the Chief Information Officer for the National Endowment for the Humanities. He also serves as the Director of the Office of Digital Humanities. Brett has a B.A. in philosophy from the University of Chicago and an M.S. in computer science from the Johns Hopkins University. In 2006 Brett received a Chief Information Officers (CIO) Council Leadership Award from the Office of Management and Budget. In 2007 he received a Presidential Rank Award from the President of the United States in recognition of his exceptional long-term accomplishments, such as cofounding the federal government's Small Agency CIO Council and establishing the NEH Office of Digital Humanities.

Katy Börner is the Victor H. Yngve Professor of Information Science at the School of Library and Information Science, Adjunct Professor at the School of Informatics and Computing, Adjunct Professor at the Department of Statistics in the College of Arts and Sciences, Core Faculty of Cognitive Science, Research Affiliate of the Center for Complex Networks and Systems Research and Biocomplexity Institute, Member of the Advanced Visualization Laboratory, Leader of the Information Visualization Lab, and Founding Director of the Cyberinfrastructure for Network Science Center at Indiana University in Bloomington, IN and Visiting Professor at the Royal Netherlands Academy of Arts and Sciences (KNAW) in The

Netherlands. She is a curator of the international [Places & Spaces: Mapping Science](#) exhibit. She holds a MS in Electrical Engineering from the University of Technology in Leipzig, 1991 and a Ph.D. in Computer Science from the University of Kaiserslautern, 1997. She became an American Association for the Advancement of Science (AAAS) Fellow in 2012.

Simon DeDeo, an Omidyar Research Fellow at the Santa Fe Institute, works on questions of computation in the natural world: how things that evolved -- in contrast to things humans built -- process information. Drawing on his training in the mathematical sciences, he takes advantage of SFI's transdisciplinary environment to investigate the emergence of collective phenomena in biological and social systems. In many cases, these allow groups to solve problems better than any of their individual parts. At SFI he combines methods developed to study, on the one hand, "unintelligent" physical phenomena, and on the other hand, engineered systems, to study evolved and adaptive phenomena in the living world. He works in collaboration with researchers in fields ranging from neuroscience to animal behavior to human social systems. Simon holds an A.B. in astrophysics from Harvard, a Master's in applied mathematics and theoretical physics from Cambridge University, and a Ph.D. in astrophysical sciences from Princeton University. His recent past includes post doctoral fellowships at the Institute for Physics and Mathematics of the Universe at the University of Tokyo and at the Kavli Institute for Cosmological Physics at the University of Chicago.

E. Thomas Ewing is an associate professor in the Department of History and Associate Dean for Graduate Studies and Research in the College of Liberal Arts and Human Sciences at Virginia Tech. He teaches courses in European and world history, Russian history, women's history as well as historical methods and area studies methods. His publications include *The Teachers of Stalinism. Policy, Practice, and Power in Soviet Schools in the 1930s* (New York: Peter Lang Publishing, 2002) and articles in *Russian Review, Gender & History, History of Education Quarterly*, and *The Journal of Women's History*. The edited collection, Revolution and Pedagogy, Transnational Perspectives on the Social Foundations of Education, will appear in spring 2005, and the co-edited collection, Education and the Great Depression. Lessons from a World History, is also due out later this year. He is project director of the Digital History Reader, an Exemplary Education project funded by the National Endowment for the Humanities.

Neil Fraistat, [Professor of English](#) at the University of Maryland and Director of the Maryland Institute for Technology in the Humanities, received his PhD from the University of Pennsylvania. He currently chairs the Alliance of Digital Humanities Organizations (ADHO) and is Co-Founder and Co-Chair of [centerNet](#), an international network of digital humanities centers. Fraistat has published widely on the subjects of Romanticism, Textual Studies, and Digital Humanities in such journals as *PMLA*, *JEGP*, *Studies in Romanticism*, *Text*, and

Literary and Linguistic Computing, as well as in such books as *The Poem and the Book*, *Poems in Their Place*, and *The "Prometheus Unbound" Notebooks*.

Jeremy Leighton John was appointed the first Curator of eMANUSCRIPTS by the British Library in 2003. He is responsible for the Digital Manuscripts Project, which is developing procedures for the capture, holding and access of eMSS: pioneering, for example, the use of authenticating forensic processes as well as exploring perspectives and practices of enhanced and proactive curation and future access. He is interested in the adoption of web 2.0, usability and evolutionary techniques and perspectives in this research and development. He holds a DPhil degree from Merton College, University of Oxford, and is the Principal Investigator of the Digital Lives Research Project.

Kari Kraus is an Associate Professor in the College of Information Studies and the Department of English. Her research and teaching interests focus on new media and the digital humanities, textual scholarship and print culture, digital preservation, and game studies. She has taught at the University of Rochester and the Eastman School of Music, and in the Art and Visual Technology program at George Mason University.

Erez Lieberman Aiden is a fellow at the Harvard Society of Fellows and Visiting Faculty at Google. His research spans many disciplines and has won numerous awards, including recognition for one of the top 20 "Biotech Breakthroughs That Will Change Medicine" by Popular Mechanics; the [Lemelson-MIT prize](#) for the best student inventor at MIT; the American Physical Society's Award for the Best Doctoral Dissertation in Biological Physics; and membership in Technology Review's 2009 TR35, recognizing the top 35 innovators under 35. His last three papers -- two with [JB Michel](#) -- have all appeared on the cover of *Nature* and *Science*.

Sheri Parks is an Associate Professor in the American Studies Department at the University of Maryland, College Park and is Associate Dean for Research, Interdisciplinary Scholarship, and Programming in the College of Arts and Humanities. She is also an affiliate faculty member of the Women's Studies and African American Studies Departments and an award-winning teacher and public speaker. Her research focuses on public aesthetics, with particular concern for popular culture as public mythology and its effect upon individuals, families and minority cultures. She received her Ph.D. and M.A. from the University of Massachusetts, Amherst in Communication Studies, and her B.A. from the University of North Carolina, Chapel Hill in English and Radio, Television, and Motion Pictures.

A. Sean Pue is an Assistant Professor of Hindi Language and South Asian Literature and Culture at Michigan State University. He came to MSU from a post-doctoral position at the South Asian Language Resource Center at the University of Chicago. He received his Ph.D. in

Middle East and Asian Languages and Cultures and Comparative Literature from Columbia University. A specialist in Urdu literature, Pue's current research focuses on the oeuvre of N. M. Rashed, Urdu's preeminent modernist poet.

Samah Gad is a Computer Science Ph.D. Candidate at Virginia Tech University. She received her bachelor's degree in 2003 and her master's degree in 2006 in Computer Engineering from Arab Academy for Science and Technology. She is co-author with Naren Ramakrishnan, Keith N. Hampton, and Andrea Kavanaugh of "Bridging the Divide in Democratic Engagement: Studying Conversation Patterns in Advantaged and Disadvantaged Communities", in the proceedings of the 2010 *ASE International Conference on Social Informatics*, (Social Informatics 2012), IEEE, 2012. She is currently working on Expressive Forms of Topic Modeling to Support Digital Humanities.

Jeffrey Reznick joined the History of Medicine Division as Chief in November 2009, following his tenure as director of the Institute for the Study of Occupation and Health of the American Occupational Therapy Foundation. Previously, he served as senior curator of the National Museum of Health and Medicine of the Armed Forces Institute of Pathology, as Executive Director and Senior Research Fellow of the Orthotic and Prosthetic Assistance Fund, and as Assistant Director of the Institute for Comparative and International Studies at Emory University. Dr. Reznick's record of scholarly historical research is as extensive as his executive career in the national nonprofit sector. As a social and cultural historian of medicine and war, he is author of two books, both published by Manchester University Press in its Cultural History of Modern War series, as well as numerous book reviews, articles for the popular press, and entries in major reference works. Besides holding active membership in several professional historical associations, including the American Historical Association and American Association for the History of Medicine, Dr. Reznick is a member of the University of Birmingham's Center for War Studies and a fellow of the Royal Historical Society.

Erica Savig has been with LabStudio since its inception in 2007. She is currently completing a Ph.D. within Cancer Biology at Stanford University, committing her computational design skills to the sciences and medicine. Erica's work visualizes large biological data sets from dynamic living cell systems. She generates multi-dimensional and interactive graphical organizations of information, as a means of data exploration and analysis, to reveal patterns and understanding of the underlying biology and disease. Erica is currently pursuing her work within the lab of Dr. Garry P. Nolan, studying complex cellular signaling networks and interactions between ovarian cancer tissues and blood immune cells. She is a joint National Science Foundation Graduate Research Fellow and Stanford Graduate Fellow (2010-2015). Erica's prior educational background includes a Master of Architecture from the University of Pennsylvania, 2009, and a Bachelor of Science in Management Science and Engineering from Stanford University, 2002.

Maximilian Schich is an art historian, joining The University of Texas at Dallas as an Associate Professor for Art and Technology in January 2013. He works to converge hermeneutics, information visualization, computer science, and physics to understand art, history, and culture. Recently, Maximilian worked on complex networks in the arts and humanities with Dirk Helbing, FuturICT coordinator at ETH Zurich (2012), and Albert-László Barabási, complex network physicist at Northeastern University in Boston (2008-2012). He was a DFG Research Fellow (2009-2012) and received funding from the Special Innovation Fund of the President of Max-Planck-Society (2008). Previously, Max obtained his Ph.D. in Art History from Humboldt-University in Berlin (2007), and his M.A. in Art History, Classic Archaeology, and Psychology from Ludwig Maximilians University Munich (2001). Besides, he looks back at over a decade of consulting experience, working with (graph) data in libraries, museums, and large research projects (1996-2008).

Tracy Teal is currently an NSF Postdoctoral Fellow in Biological Informatics at Michigan State University in the lab of Thomas Schmidt where she studies microbial ecology. She is interested in understanding how agricultural practices affect soil microbial communities and how those communities might affect changes in the production and consumption of greenhouse gases. She works primarily at the Kellogg Biological Station Long-Term Ecological Research station and the Great Lakes Bioenergy Research Center Extensive Sites, where she collects soil samples for targeted molecular and whole genome shotgun metagenomic analyses. She is also developing computational tools to manage and utilize this metagenomic data to address relevant questions in microbial community ecology.

John Unsworth serves as the Vice-Provost for Library and Technology Services and Chief Information Officer at Brandeis University. He formerly was Dean of the Graduate School of Library and Information Science (GSLIS) at the University of Illinois, Urbana-Champaign from 2003 to 2012, where he was Director of the Illinois Informatics Institute, a campus-wide organization that serves to coordinate and encourage informatics-related education and research. During the ten years before coming to Illinois, from 1993-2003, he served as the first Director of the Institute for Advanced Technology in the Humanities, and a faculty member in the English Department, at the University of Virginia. For his work at IATH, he received the 2005 Richard W. Lyman Award from the National Humanities Center. He chaired the national commission that produced Our Cultural Commonwealth, the 2006 report on Cyberinfrastructure for Humanities and Social Science, on behalf of the American Council of Learned Societies, and he has supervised research projects across the disciplines in the humanities. He has also published widely on the topic of electronic scholarship, as well as co-directing one of nine national partnerships in the Library of Congress's National Digital Information Infrastructure Preservation Program, and securing grants from the National

Endowment for the Humanities, the National Science Foundation, the Getty Grant Program, IBM, Sun, the Andrew W. Mellon Foundation, and others.

Social Media Information

Twitter
Maryland Institute for Technology in the Humanities: @UMD_MITH
National Endowment for the Humanities: @NEHgov
Office of Digital Humanities-National Endowment for the Humanities: @NEH_ODH
National Library of Medicine Newsroom: @NLM_news
Shared Horizons Workshop: #DHbio

Contact Information

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Sponsor Logos

included in the digital press file only

Presenter Photos

included in the digital press file only

Previous Press Releases

National Endowment for the Humanities

NEH and partner organizations co-sponsor symposium on biomedicine and digital humanities

WASHINGTON (August 6, 2012) — The National Endowment for the Humanities (NEH) is pleased to announce the first initiative as part of its recently-established partnership with the National Library of Medicine (NLM), which lays groundwork for the two institutions to cooperate on initiatives of common interest.

NEH's Office of Digital Humanities, working in cooperation with NLM, the Maryland Institute for Technology in the Humanities of the University of Maryland, and Research Councils UK, will be a part of "Shared Horizons: Data, Biomedicine, and the Digital Humanities," an interdisciplinary symposium exploring the intersection of digital humanities and biomedicine. Scheduled to take place April 10-12, 2013, Shared Horizons will be a unique forum through which participants and their institutions will be able to address questions about collaboration, research methodologies, and the interpretation of evidence arising from the interdisciplinary opportunities in this burgeoning area of biomedical-driven humanities scholarship.

Shared Horizons will create opportunities for disciplinary cross-fertilization through a mix of formal and informal presentations combined with breakout sessions, all designed to promote a rich exchange of ideas about how large-scale quantitative methods can lead to new understandings of human culture. Bringing together researchers from the digital humanities and bioinformatics communities, the symposium will explore ways in which these two communities might fruitfully collaborate on projects that bridge the humanities and medicine around the topics of sequence alignment and network analysis, two modes of analysis that intersect with "big data."

For more information, including the call for attendees, please visit:
http://www.mith.umd.edu/sharedhorizons/

National Institutes of Health

NLM to Participate with Partners in "Shared Horizons: Data, Biomedicine, and the Digital Humanities" Symposium

The National Library of Medicine (NLM) is pleased to announce its first initiative as part of its recently-established partnership with the National Endowment for the Humanities (NEH) (http://www.nlm.nih.gov/news/partnership_nlm_neh.html), which lays groundwork for the two institutions to cooperate on initiatives of common interest. NLM, a component of the National Institutes of Health, is the world's largest biomedical library.

Working in cooperation with the NEH's Office of Digital Humanities (http://www.neh.gov/odh/); Maryland Institute for Technology in the Humanities at the University of Maryland (http://mith.umd.edu); and Research Councils UK (http://www.rcuk.ac.uk/), the NLM will be a part of "Shared Horizons: Data, Biomedicine, and the Digital Humanities," an interdisciplinary symposium exploring the intersection of digital humanities and biomedicine.

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For more information, including the call for attendees, please visit: http://www.mith.umd.edu/sharedhorizons/.

National Endowment for the Humanities and the National Library of Medicine to Partner on Research, Education, and Career Initiatives

WASHINGTON (June 20, 2012) — The National Endowment for the Humanities (NEH) today announced a new collaboration with the National Library of Medicine (NLM) to develop initiatives that bring together scholars, scientists, librarians, doctors and cultural heritage professionals from the humanities and biomedical communities in order to share expertise and develop new research agendas.

Representatives from the NLM and NEH signed a memorandum of understanding that outlines their partnership and recognizes their shared interest in advancing health and medical education, training and information dissemination for research, teaching and learning by the humanities and biomedical communities.

As initial efforts, the partners will work together to:
- Explore areas of mutual interest for research, particularly in the fields of digital humanities and history of medicine;
- Develop and participate in curricula and courses, training and internship opportunities, and other educational initiatives; and
- Develop initiatives to increase access to careers in medicine and health, with a particular interest in reaching students who are under-represented in the fields

About the partner institutions:

The [National Endowment for the Humanities](#) is an executive-branch, independent grant-making agency of the United States of America dedicated to supporting research, education, preservation, and public programs in the humanities and in those social sciences that use humanistic methods. NEH accomplishes this mission by providing grants for high-quality humanities projects to cultural institutions, such as museums, archives, libraries, colleges, universities, public television and radio stations, and to individual scholars.

Since its founding in 1836, the [National Library of Medicine](#) has played a pivotal role in translating biomedical research into practice. NLM, part of the National Institutes of Health, is the world's largest medical library with more than 17 millionitems in its collection. A leader in information innovation, it is the developer of electronic information services used by scientists, health professionals and the public around the world. NLM makes its information services known and available withthe help of the National Network of Libraries ofMedicine, which consists of 5,600 member institutions, including eight Regional Medical Libraries. NLM conducts and supports research that applies computer and information science to meet the information needs of clinicians, public health administrators, biomedical researchers and consumers.