

UCLA

Presentations

Title

Scholarship in the Digital Age: Blurring the Boundaries between the Sciences and the Humanities (Keynote)

Permalink

<https://escholarship.org/uc/item/3sj3w1jh>

Author

Borgman, Christine L.

Publication Date

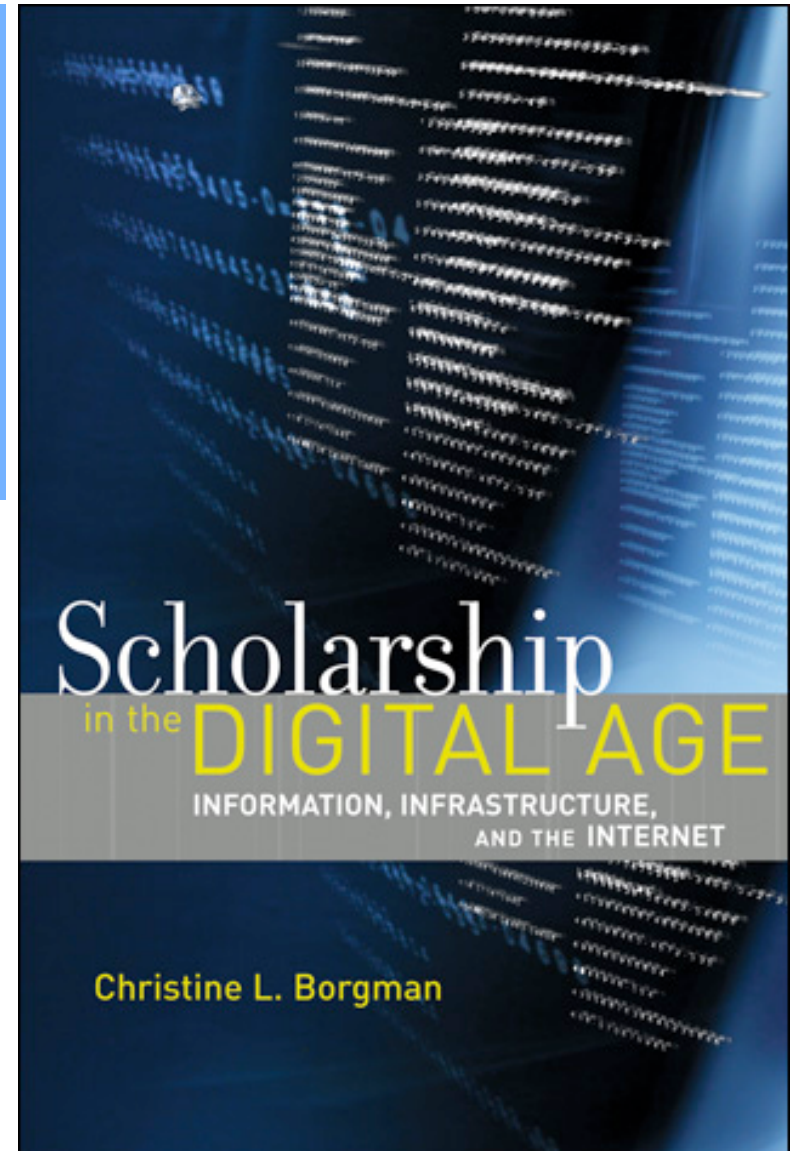
2009-06-23

Scholarship in the Digital Age: Blurring the boundaries between the sciences and the humanities

Christine L. Borgman
Professor & Presidential Chair in Information Studies UCLA

Digital Humanities Conference

University of Maryland
23 June 2009



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Acknowledgements for advice on this talk

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<https://www.uen.org/utah/images/acknowledgements.gif>

Participants in UCLA Dress Rehearsal

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A DIGITAL HUMANITIES MANIFESTO

A PROJECT OF THE MELLON SEMINAR IN DIGITAL HUMANITIES AT UCLA

A DIGITAL HUMANITIES MANIFESTO

A PROJECT OF THE MELLON SEMINAR IN DIGITAL HUMANITIES AT UCLA

Next: [The Digital Humanities Manifesto 2.0](#) »

« Previous: [A Digital Humanities Manifesto](#)

Total comments on this page: 3

A Digital Humanities Manifesto



The Digital Humanities Manifesto



COMMENTS OVERVIEW

WHOLE PAGE (3)

BROWSE COMMENTS

by Commenter
by Section
General Comments

Digital Humanities is not a unified field but an array of convergent practices that explore a universe in which:

- a) print is no longer the exclusive or the normative medium in which knowledge is produced and/or disseminated; instead, print finds itself absorbed into new, multimedia configurations; and
- b) digital tools, techniques, and media have altered the production and dissemination of knowledge in the arts, human and social sciences.

1 Digital humanities is not a unified field but an array of convergent practices that explore a universe in which knowledge is

2 Like all media revolutions, the digital revolution looks at a world where while vastly different, we look forwards to specific features

3 The first wave of search and retrieval is qualitative, immerses the core strength

4 Interdisciplinary empty words and method, and c

5 The digital is resources, open space should l

6 Yes, there is so humanities: T infinite, the ex

7 Copyright and the stranglehold materials on s sue... your entire neighborhood, school, or country. Practice digital anarchy by creatively undermining copyright and mashing up media.

8 The multi-purposing and multiple channeling of humanistic knowledge: no channel excludes the other. This is an abundance based economy, not one based upon scarcity. It values the COPY more highly than ORIGINALS and restores to the word COPY its original meaning of abundance: COPIA = COPIOUSNESS = THE OVERFLOWING BOUNTY OF THE INFORMATION AGE.

5) move on

7 *what is(n't) digital humanities (and why it matters)*

8 Digital Humanities is not a unified field but **an array of convergent practices** that explore a universe in which: a) print is no longer the exclusive or the normative medium in which knowledge is produced and/or disseminated; instead, print finds itself absorbed into new, multimedia configurations; and b) digital tools, techniques, and media have altered the production and dissemination of knowledge in the arts, human and social sciences. The Digital Humanities seeks to play an inaugural role with respect to a world in which, no longer the sole producers, stewards, and

MENTS

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IT COMMENTS

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ities Manifesto 2.0
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LA has a Center
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Humanities
sto 2.0. And, yes,
...]

A Digital Humanities
Manifesto
craigbellamy.net » A
Digital Humanities
Manifesto says: [...] I am
pleased that UCLA has
discovered the Digital
Humanities. Here is a
manifesto th[...]
A Digital Humanities
Manifesto
Knowledge Remix in the
Humanities and Social
Sciences « OPEN
REFLECTIONS says: [...]
"Process is the new god;

I'm finding that something as simple as constructing my maps of related concepts are not easily applied to primary sources in digital libraries.

So what use are the digital libraries, if all they do is put digitally unusable information on the web? The digital libraries don't offer a platform for traditional note taking, much less for larger scale analysis, either quantitative or qualitative.



Kimberly Garmoe, UCLA doctoral student in history, quoted with permission, June 8, 2009

The Chronicle Review

From the issue dated April 3, 2009

Blind Spots

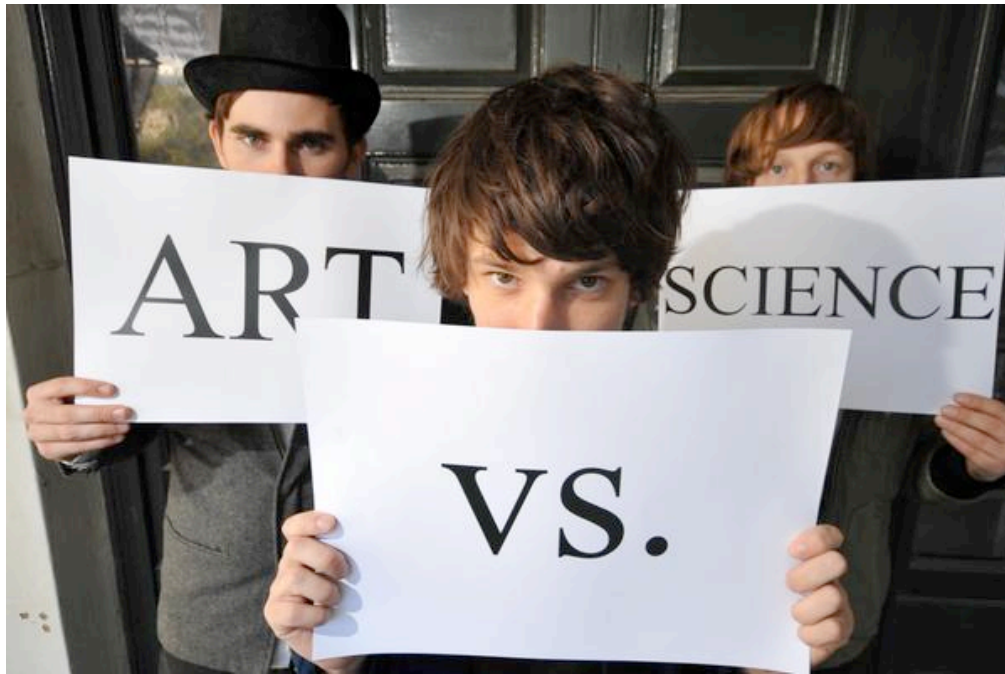
Humanists must plan their digital future

By JOHANNA DRUCKER

We face a critical juncture. Leaving it to "them" is unfair, wrongheaded, and irresponsible. Them is us.



- Scholarly information infrastructure
- Science {and, or, vs} humanities



- Publication practices
- Data
- Research methods
- Collaboration
- Incentives
- Learning

- Call to Action

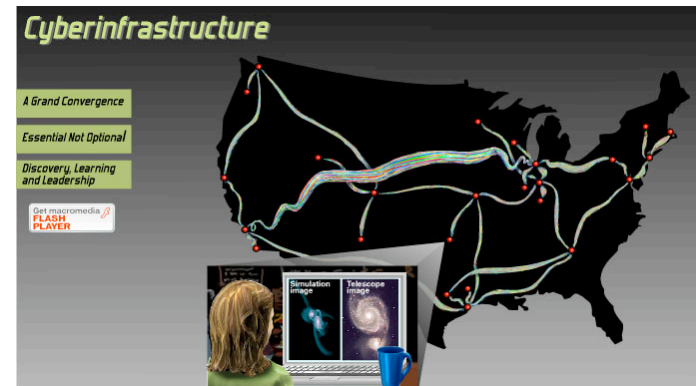
Infrastructure



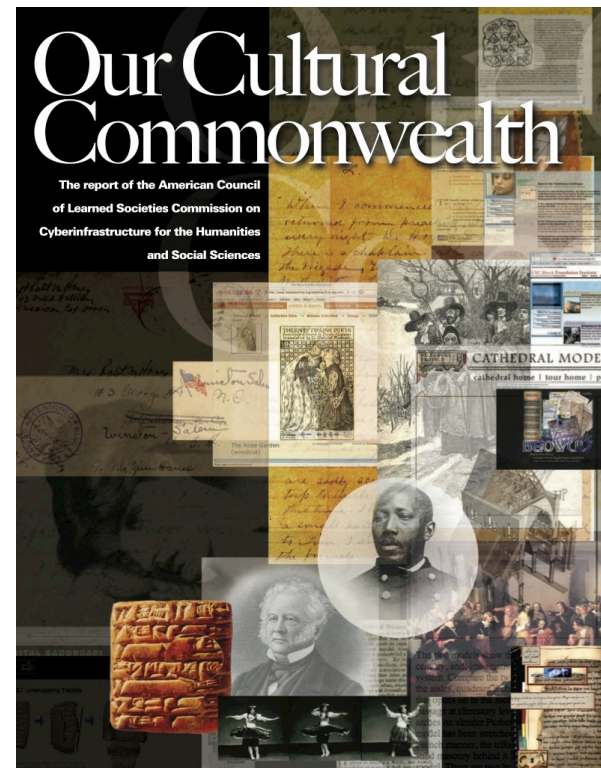
[http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/5C513189873EB0B180257122003E3FB3/\\$file/28_04_06+071.jpg](http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/5C513189873EB0B180257122003E3FB3/$file/28_04_06+071.jpg)

Scholarly Information Infrastructure

- Cyberinfrastructure, eScience, eSocial Science, eHumanities, ...eResearch
- Goal: enable new forms of scholarship that are
 - information-intensive
 - data-intensive
 - distributed
 - collaborative
 - multi-disciplinary



http://www.nsf.gov/news/special_reports/cyber/images/noflashintro.jpg



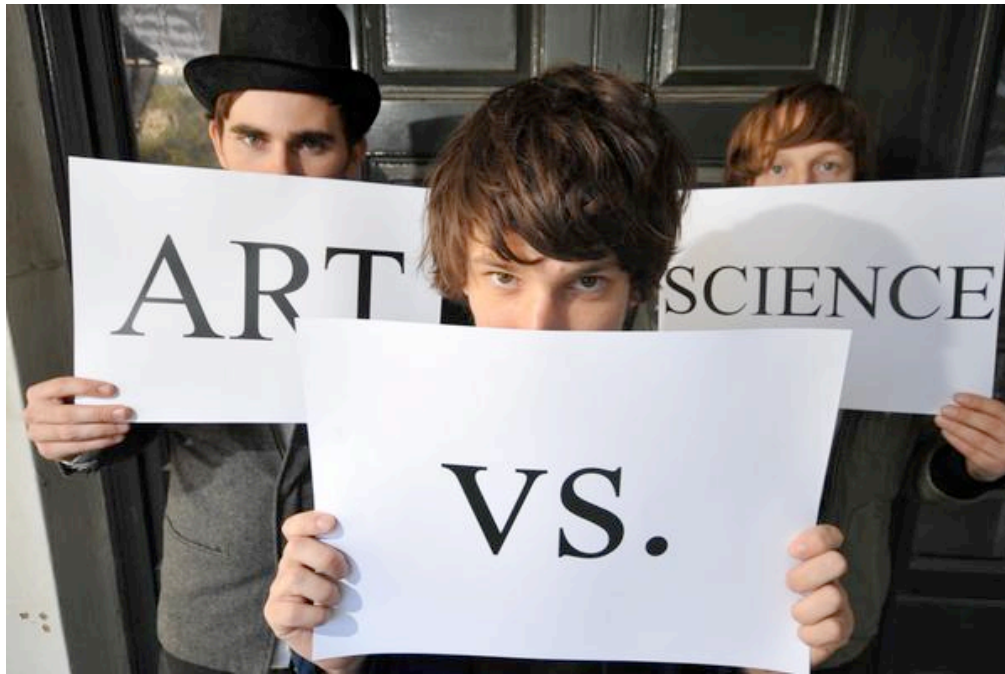
Asking Questions and Building a Research Agenda for Digital Scholarship

Amy Friedlander

- Scale
- Language and communication
- Space and time
- Social networking

Friedlander, A. (2009). Asking Questions and Building a Research Agenda for Digital Scholarship. In *Working Together or Apart: Promoting the Next Generation of Digital Scholarship*. Washington, DC, Council on Library and Information Resources. CLIR Publication No. 145: 1-15. <http://www.clir.org>

- Scholarly information infrastructure
- Science {and, or, vs.} humanities



- Publication practices
- Data
- Research methods
- Collaboration
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- Learning

- Call to Action

The Scholarly Journal, 1665-2009

PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD

Vol I.

For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little with-
out Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.

THE ROYAL
SOCIETY

ISSN 0962-8436

IN THIS ISSUE

***The science of well-being:
integrating neurobiology, psychology
and social science***

29 September 2004
volume 359
number 1449
pages 1329-1451

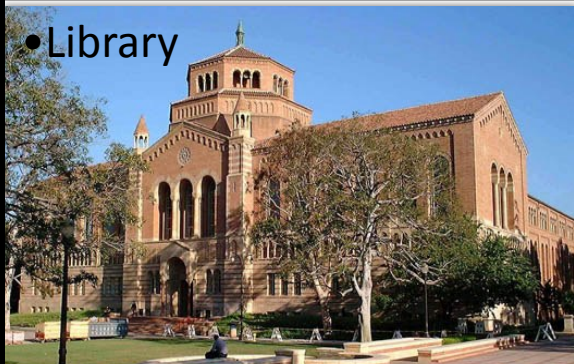
*Papers of a Discussion Meeting organized
and edited by F. A. Huppert, N. Baylis
and B. Keverne*



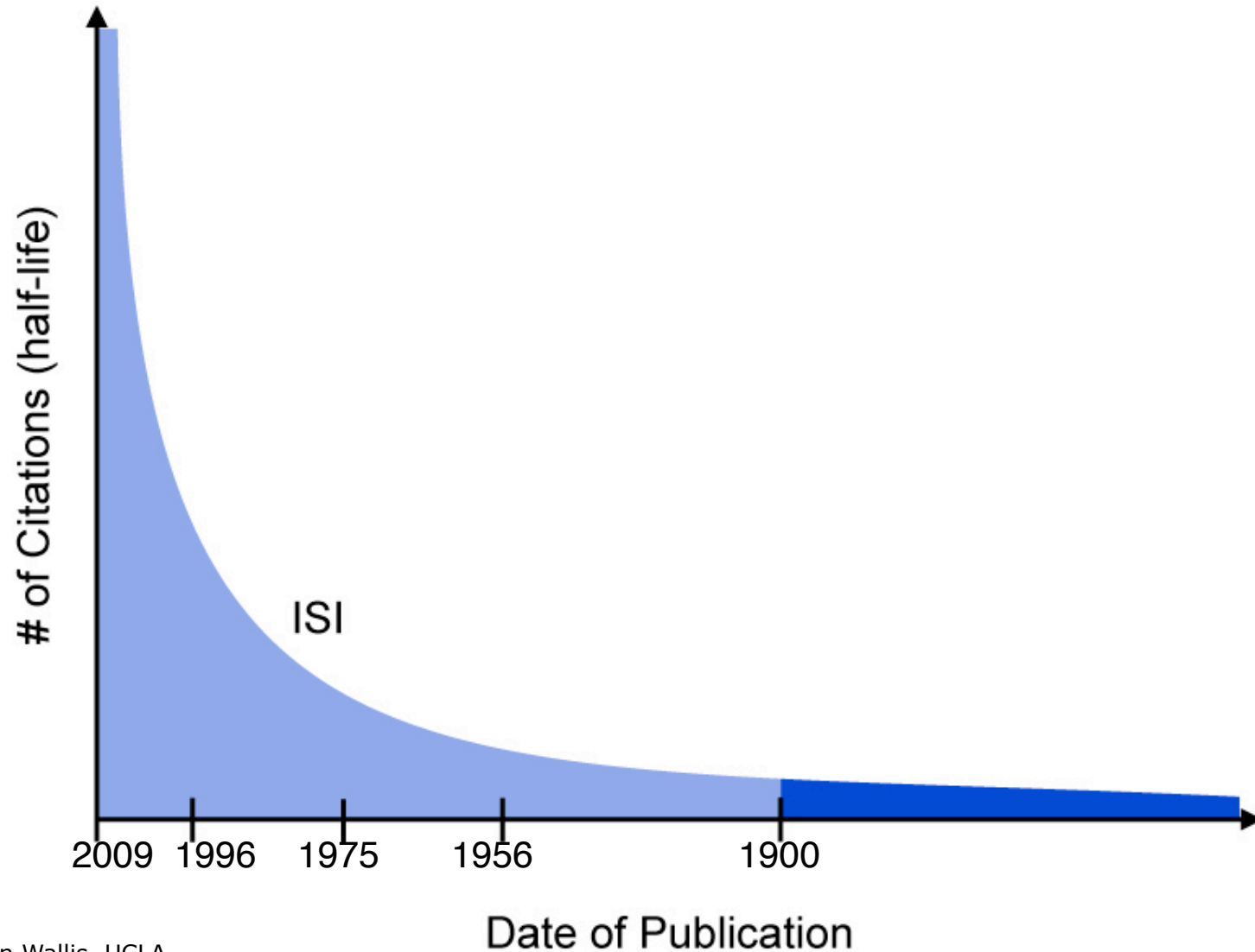
Philosophical
Transactions
of The Royal Society
Biological Sciences

*The world's longest running
international science journal*

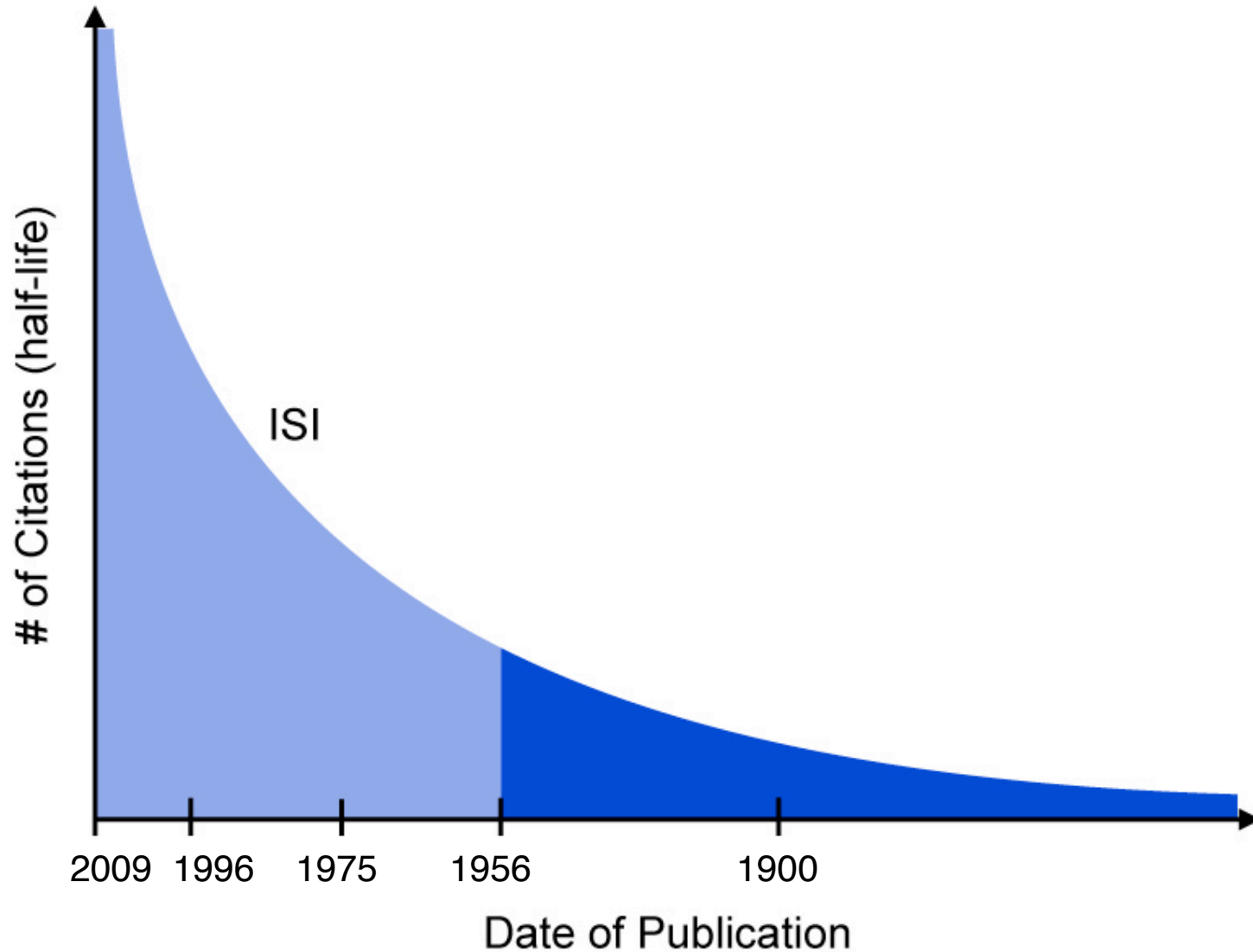
Why do scholars publish?

Function	Print	Digital
Legitimization Authority, quality, priority, trustworthiness	•Peer review	•Peer review
Dissemination Awareness, diffusion, publicity	•Publisher •Pre-print distribution •Copy •Mail	•Publisher •Pre-print distribution •Post on Web •Deposit
Access, preservation, curation Availability, discovery, retrieval, persistence	•Library 	•Library •Publisher •Repository •Homepage

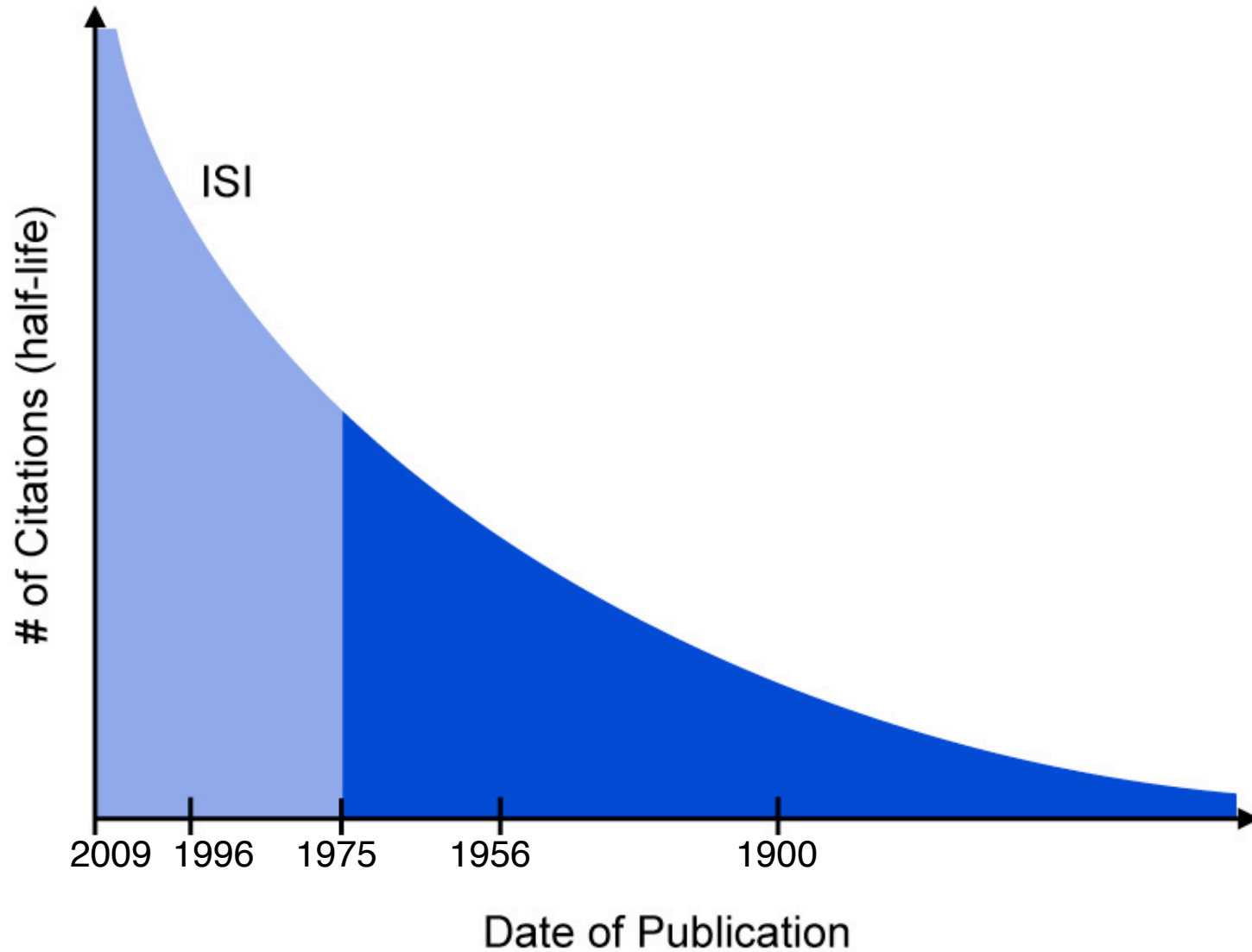
Citation distribution of scientific literature



Citation distribution of social scientific literature



Citation distribution of humanities literature



Open access to 544,057 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics

Subject search and browse:

8 Apr 2009: [Added public author identifiers, Facebook interaction, myarticles widget, and personal Atom feeds](#)

31 Mar 2009: [Quantum Gases \(cond-mat.quant-gas\) subject area added](#)

See cumulative "What's New" pages.

Robots Beware: indiscriminate automated downloads from this site are *not* permitted.

Physics

- [Astrophysics \(astro-ph new, recent, find\)](#)
includes: Cosmology and Extragalactic Astrophysics; Earth and Planetary Astrophysics; Galaxy Astrophysics; High Energy Astrophysical Phenomena; Instrumentation and Methods for Astrophysics; Solar and Stellar Astrophysics
- [Condensed Matter \(cond-mat new, recent, find\)](#)
includes: Disordered Systems and Neural Networks; Materials Science; Mesoscale and Nanoscale Physics; Other Condensed Matter; Quantum Gases; Soft Condensed Matter; Statistical Mechanics; Strongly Correlated Electrons; Superconductivity
- [General Relativity and Quantum Cosmology \(gr-qc new, recent, find\)](#)
- [High Energy Physics - Experiment \(hep-ex new, recent, find\)](#)
- [High Energy Physics - Lattice \(hep-lat new, recent, find\)](#)
- [High Energy Physics - Phenomenology \(hep-ph new, recent, find\)](#)
- [High Energy Physics - Theory \(hep-th new, recent, find\)](#)
- [Mathematical Physics \(math-ph new, recent, find\)](#)
- [Nuclear Experiment \(nucl-ex new, recent, find\)](#)
- [Nuclear Theory \(nucl-th new, recent, find\)](#)
- [Physics \(physics new, recent, find\)](#)
includes: Accelerator Physics; Atmospheric and Oceanic Physics; Atomic Physics; Atomic and Molecular Clusters; Biological Physics; Chemical Physics; Classical Physics; Computational Physics; Data Analysis, Statistics and Probability; Fluid Dynamics; General Physics; Geophysics; History of Physics; Instrumentation and Detectors; Medical Physics; Optics; Physics Education; Physics and Society; Plasma Physics; Popular Physics; Space Physics
- [Quantum Physics \(quant-ph new, recent, find\)](#)

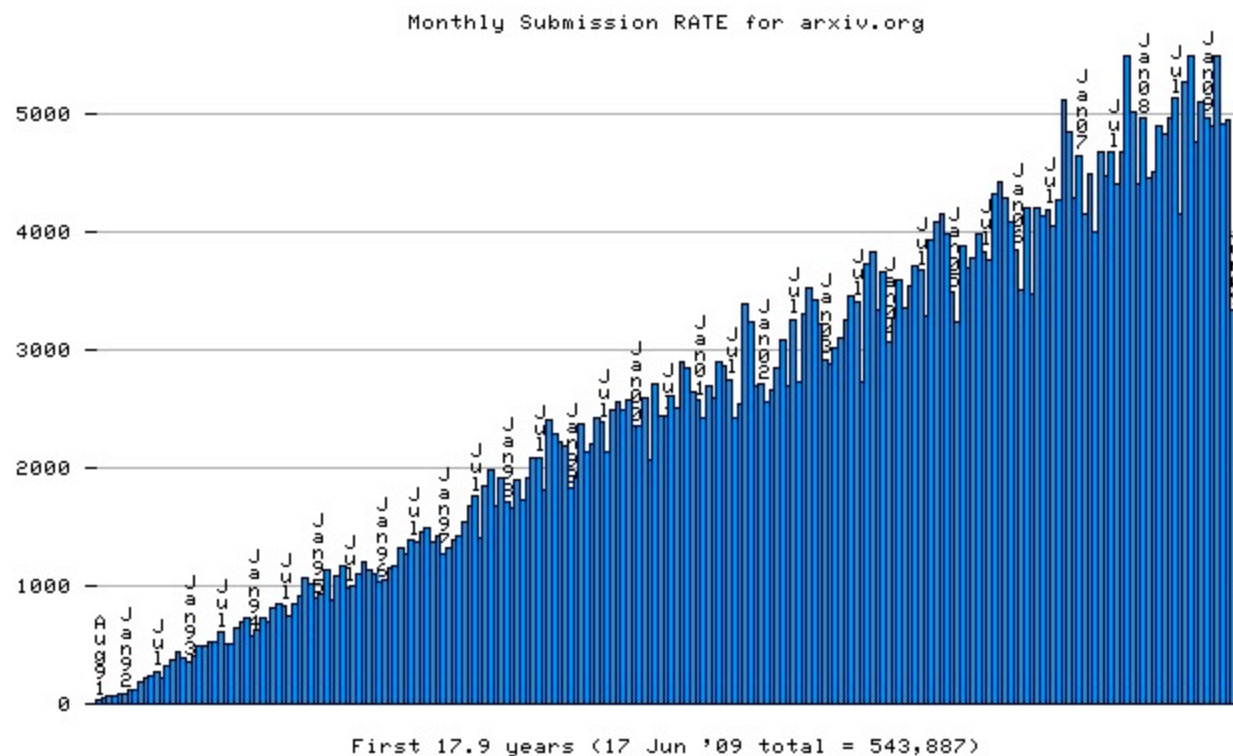
Mathematics

- [Mathematics \(math new, recent, find\)](#)
includes (see [detailed description](#)): Algebraic Geometry; Algebraic Topology; Analysis of PDEs; Category Theory; Classical Analysis and ODEs; Combinatorics; Commutative Algebra; Complex Variables; Differential Geometry; Dynamical Systems; Functional Analysis; General Mathematics; General Topology; Geometric Topology; Group Theory; History and Overview; Information Theory; K-Theory and Homology; Logic; Mathematical Physics; Metric Geometry; Number Theory; Numerical Analysis; Operator Algebras; Optimization and Control; Probability; Quantum Algebra; Representation Theory; Rings and Algebras; Spectral Theory; Statistics; Symplectic Geometry

Nonlinear Sciences

- [Nonlinear Sciences \(nlin new, recent, find\)](#)
includes (see [detailed description](#)): Adaptation and Self-Organizing Systems; Cellular Automata and Lattice Gases; Chaotic Dynamics; Exactly Solvable and Integrable Systems; Pattern Formation and Solitons

arXiv monthly submission rate statistics



Blue – Number of new submissions received during each month since Aug '91

Statistics of submissions to and use of arXiv:

- monthly submission totals
- monthly submission totals [sorted](#) by subject areas (updated 31 Dec '08)
- [today's usage](#) (this server only)

arXiv web server usage for 18 Jun '09 ([arxiv.org](#) site only)

Hour_Total_Connections

00	_48509_		48509
01	_98140_		49631
02	_157279_		59139
03	_227310_		70031
04	_293128_		65818
05	_357551_		64423
06	_417405_		59854
07	_477425_		60020
08	_541911_		64486
09	_608406_		66495
10	_676708_		68302
11	_739280_		62572
12	_794698_		55418
13	_845346_		50648
14	_892398_		47052
15	_939723_		47325
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18	1051466_		28607
19	1069747_		18281

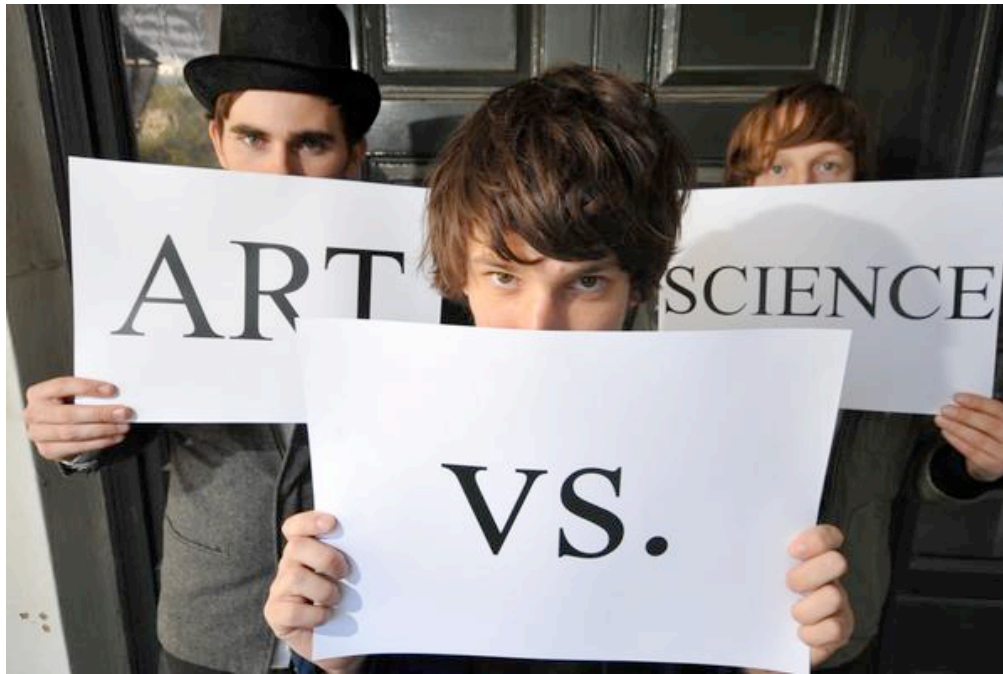
Total number of connections = 1069747 (+93 local & administrative connections)

Current local time is *Thu, 18 Jun 09 19:38:43 EDT*

Statistics of submissions to and use of arXiv:

- [monthly submission totals](#)
- [monthly submission totals sorted](#) by subject areas (updated 31 Dec '08)
- today's usage (this server only)

- Scholarly information infrastructure
- Science {and, or, vs} humanities

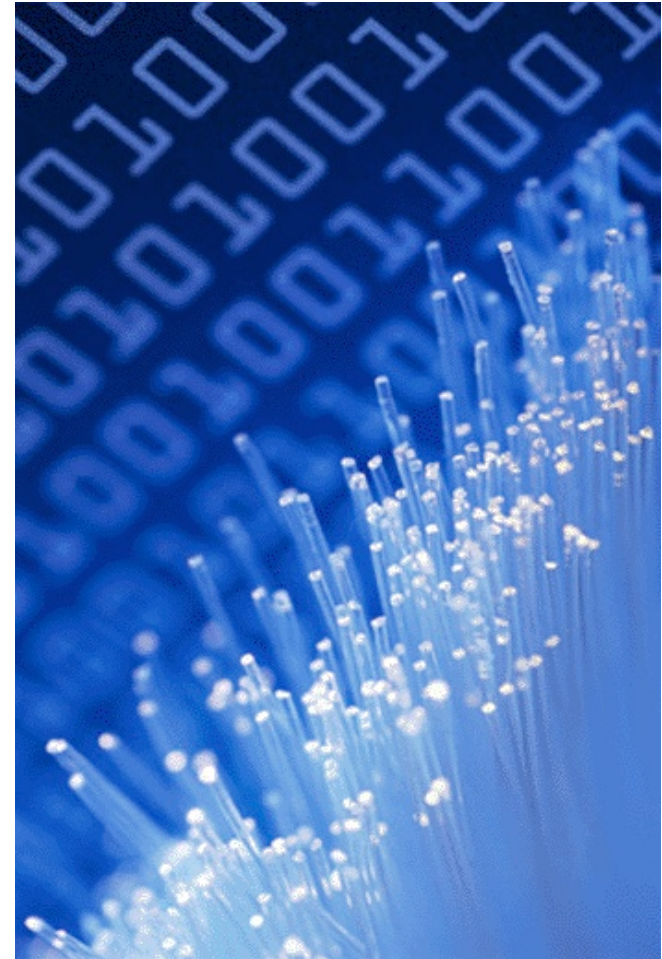


- Publication practices
- Data
- Research methods
- Collaboration
- Incentives
- Learning

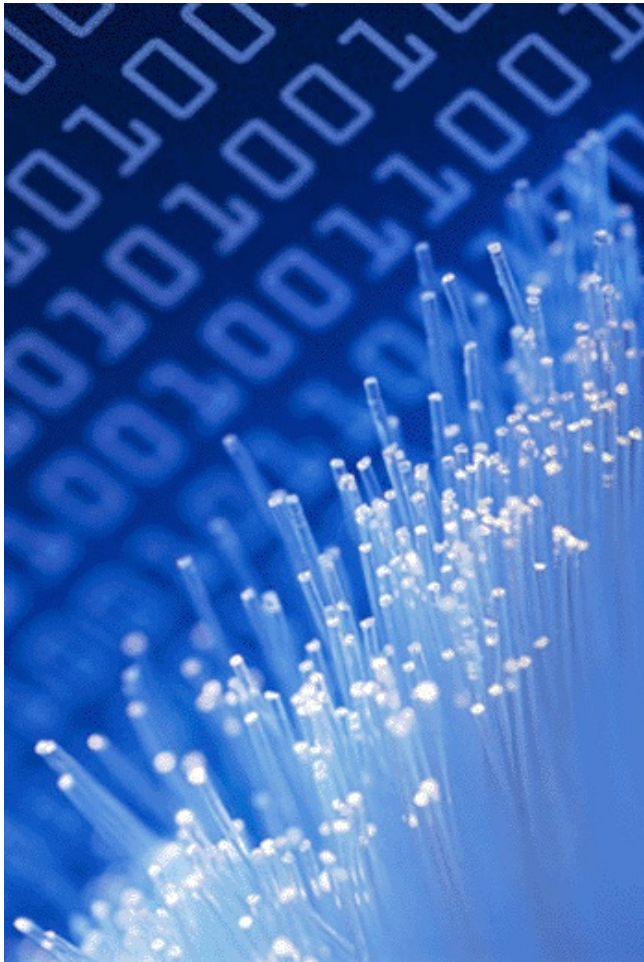
- Call to Action

Data in digital scholarship

- Scholarly capital
 - Human capital
 - Instrumentation
 - Data
- Leverage research investments
 - Replicate, verify research findings
 - Ask new questions with extant data
 - Computational biology, chemistry
 - Longitudinal and comparative research
 - Mining large bodies of text and observations
- Collaborative research
 - Data creation
 - Data sharing, reuse



What are data?



http://datalib.ed.ac.uk/GRAPHICS/blue_data.gif

Categories of data*

- Observational
- Computational
- Experimental
- Records

Objective or subjective?

- Facts
- “alleged evidence” (Buckland, 2006)

*Long-Lived Data, NSF, 2005

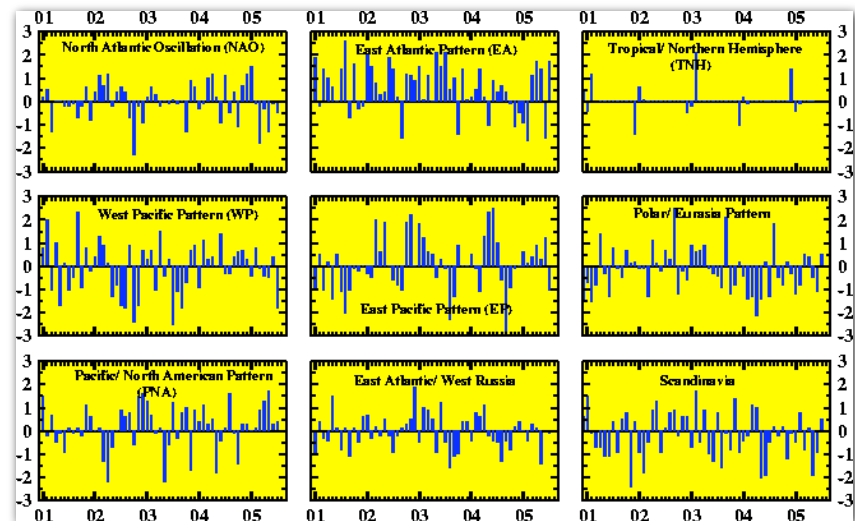
Scientific data

- Examples

- Ecology: weather, ground water, sensor readings, historical record
- Medicine: xrays
- Chemistry: protein structures
- Astronomy: spectral surveys
- Biology: specimens
- Physics: events, objects
- Documentation: Lab and field notebooks, spreadsheets

- Sources

- Generate own data
- Acquire from collaborators, other scientists
- Data repository



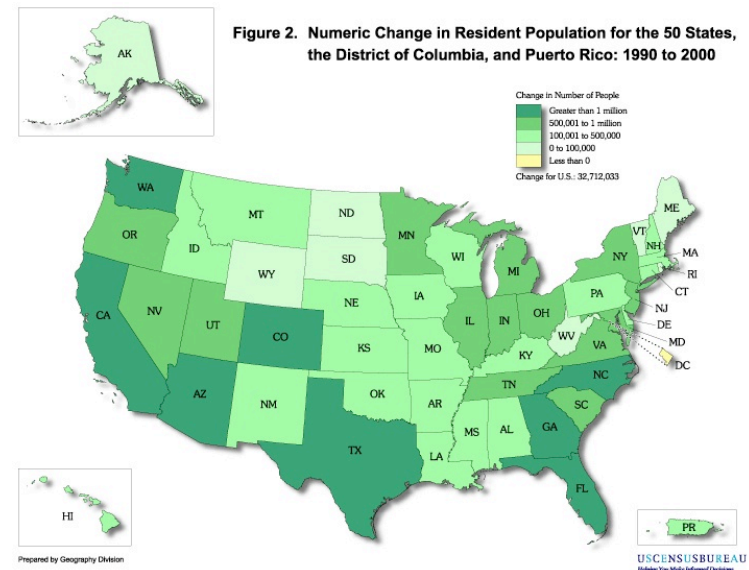
Social scientific data

- Examples

- Opinion polls
- Surveys, interviews
- Mass media
- Laboratory experiments
- Field experiments
- Demographic records
- Census records
- Voting records
- Economic indicators

- Sources

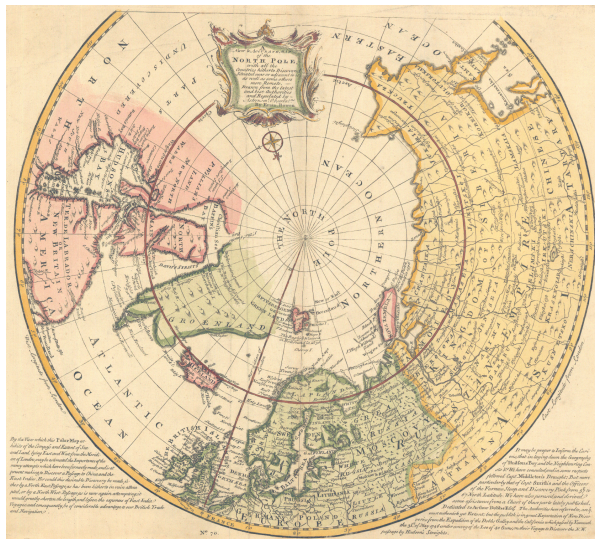
- Generate own data
- Acquire from other scholars
- Data repositories: Social Surveys
- Government records
- Corporate records



Humanities and arts data

- Examples

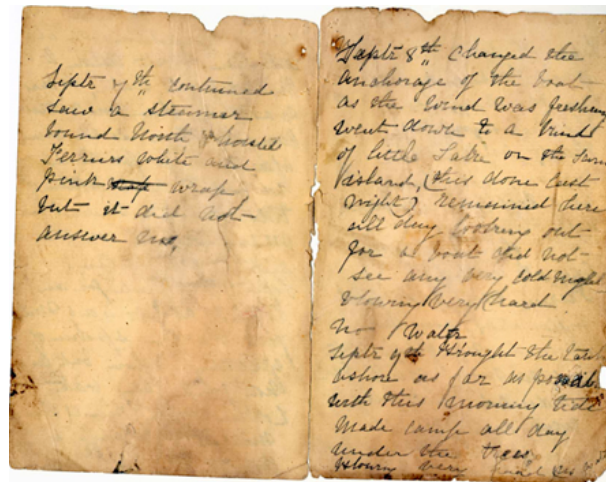
- Newspapers
- Photographs
- Letters
- Diaries
- Books, articles
- Birth, death, marriage records
- Church records
- Court records
- School and college yearbooks
- Maps...



http://libweb5.princeton.edu/visual_materials/maps/websites/northwest-passage/arctic1747-full.jpg

- Sources

- Libraries, archives, museums
- Public records
- Corporate records, mass media
- Acquire from other scholars
- Data repositories: Beazley, Arts & Humanities Data Service (UK)



http://recollections.nma.gov.au/ejournal_library/images/vol_1_no_1/national_treasures_watson_diary_w450/files/13015/National%20Treasures%20-%20WatsonDiary.jpg



Rev. Charles Lutwidge Dodgson [Lewis Carroll]
Xie Kitchin
ca. 1875
Albumen print
15.7 x 12.7 cm

<http://www.hrc.utexas.edu/collections/photography/>

WIRED MAGAZINE: 16.07

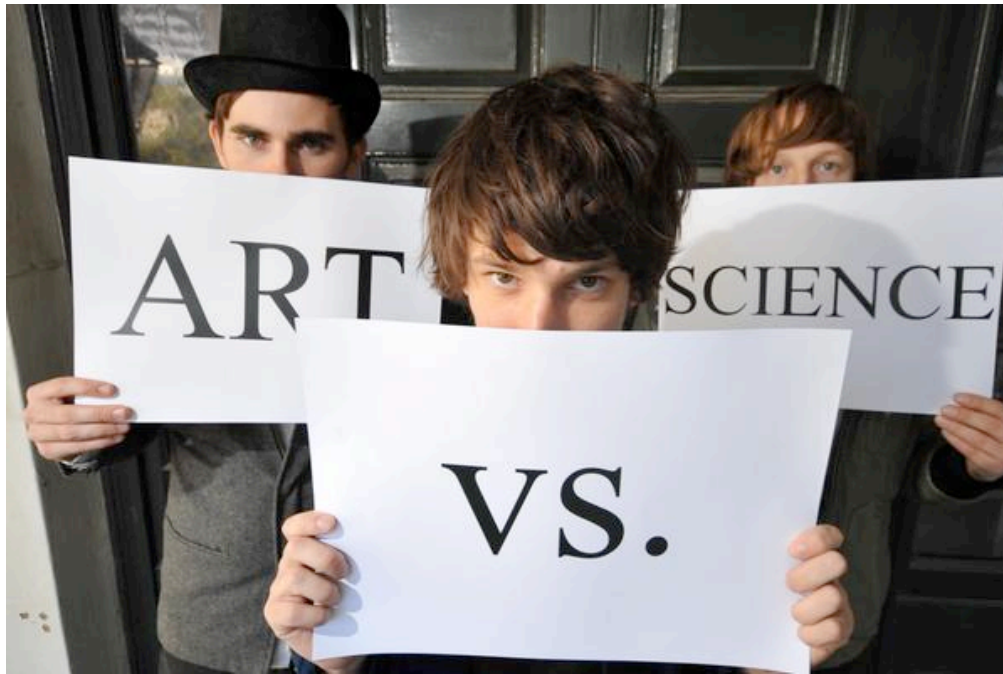
SCIENCE : DISCOVERIES 

The End of Theory: The Data Deluge Makes the Scientific Method Obsolete

By Chris Anderson  06.23.08



- Scholarly information infrastructure
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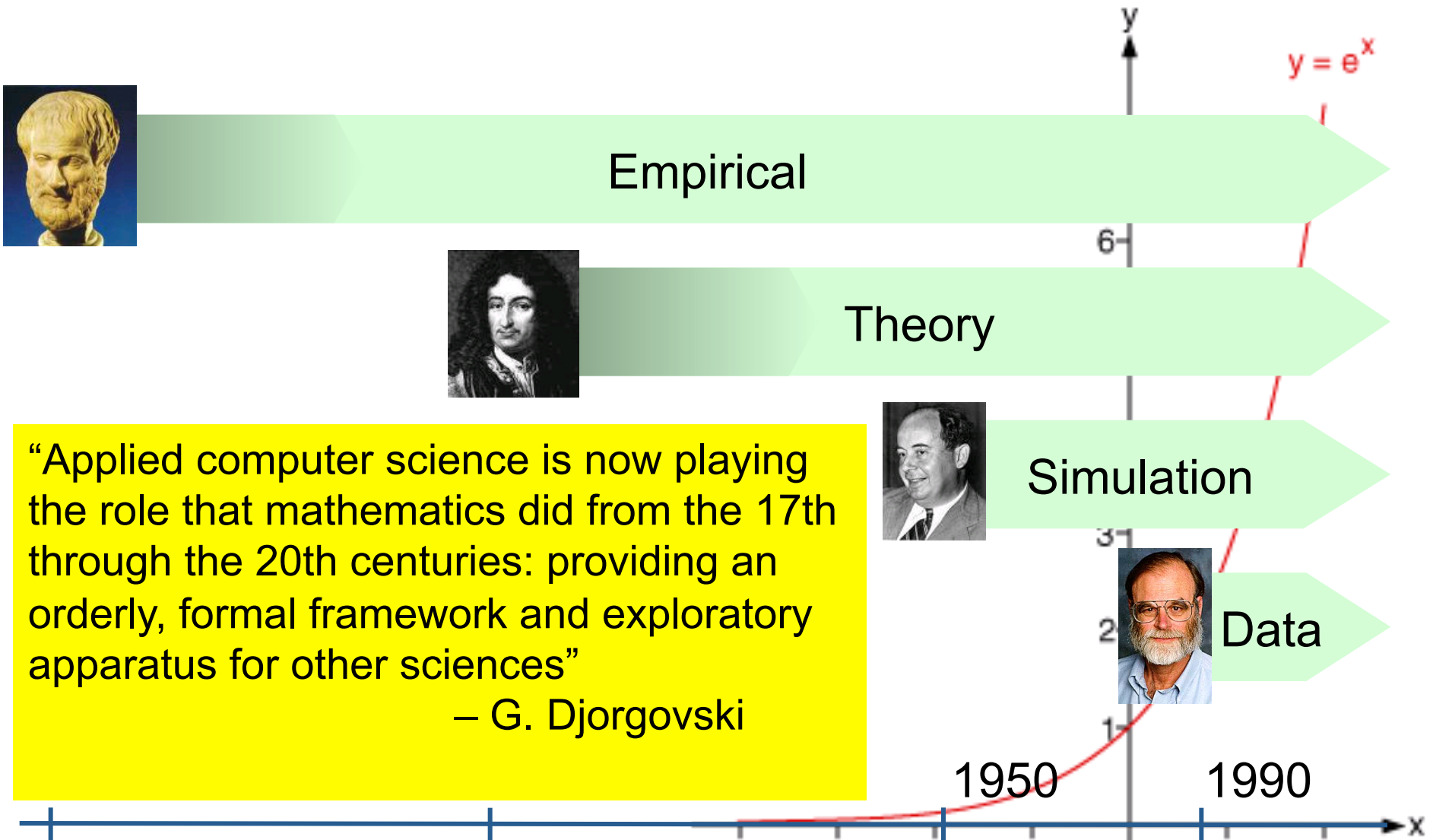


<http://www.una.edu/compcenter/img/computerlab.jpg>

<http://www.american.edu>

<http://student.some.ox.ac.uk/mcr/images/library%20interior.jpg>

New problem solving methods



“Applied computer science is now playing the role that mathematics did from the 17th through the 20th centuries: providing an orderly, formal framework and exploratory apparatus for other sciences”

– G. Djorgovski



Sloan Digital Sky Survey

Mapping the Universe

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Scientific and Technical Publications

[Scientific papers](#) are based on analyses of, or presentations of, the SDSS data. [Data Release papers](#) describe the specific process for each data release. [Technical papers](#) describe the SDSS instrumentation, calibration, software, strategy, and targeting algorithms. Technical papers may include some SDSS data for illustrative purposes. This list represents the definitive list of SDSS papers submitted to peer-reviewed journals. [Other Publications Based on SDSS Data](#) is a list of publications in journals and astro-ph which use public SDSS data.

Scientific Publications

Title

First Author

astro-ph Journal

A MaxBCG Catalog of 12,875 Galaxy Clusters from the Sloan Digital Sky Survey	B. Koester	0701268	ApJ accepted
Luminosity dependence of the spatial and velocity distributions of galaxies: Semi-analytic models versus the Sloan Digital Sky Survey	C. Li	0701218	MNRAS submitted
Clustering Analyses of 300,000 Photometrically Classified Quasars--II. The Excess on Very Small Scales	A. Myers	0612191	ApJ accepted
Clustering Analyses of 300,000 Photometrically Classified Quasars--I. Luminosity and Redshift Evolution in Quasar Bias	A. Myers	0612190	ApJ accepted
Environment-Dependence of Properties of Galaxies in the Sloan Digital Sky Survey	C. Park	0611610	ApJ accepted
Internal and Collective Properties of Galaxies in the Sloan Digital Sky Survey	Y. Choi	0611607	ApJ accepted
The UV Properties of SDSS Selected Quasars	G. Trammell	0611549	AJ accepted
The Peculiar SN 2005hk: Do Some Type Ia Supernovae Explode as Deflagrations?	M. M. Phillips	0611295	PASP submitted
SDSS J1029+2623: A Gravitationally Lensed Quasar with an Image Separation of 22.5 Arcseconds	N. Inada	0611275	ApJL 653:97 (2006)
Topology of Structure in the Sloan Digital Sky Survey: Model Testing	J. Gott	0610762	ApJ submitted
Broad Absorption Line Variability in Repeat Quasar Observations from the SDSS	B. Lundgren	0610656	ApJ submitted
Low-Mass Dwarf Template Spectra from the SDSS	J. Bochanski	0610639	AJ 133:531 (2007)
The Clustering of Galaxy Groups: Dependence on Mass and other Properties	A. Berlind	0610524	ApJ submitted
3.6-7.9 um Photometry of L and T Dwarfs and the Prevalence of Vertical Mixing in their Atmospheres	S. Leggett	0610214	ApJ accepted
Galaxy Colour, Morphology, and Environment in the Sloan Digital Sky Survey	N. Ball	0610171	MNRAS submitted
A New Survey for Giant Arcs	J. Hennawi	0610061	AJ submitted
Using the Galactic Dynamics of M7 Dwarfs to Infer the Evolution of their Magnetic Activity	A. West	0609001	AJ 132:2507 (2006)
Model Atmosphere Analysis of the Weakly Magnetic DZ White Dwarf G165-7	P. Dufour	0608065	ApJ 651:1112 (2006)
Cluster Lensing in the SDSS I: Weak Lensing Profiles	E. Sheldon		ApJ submitted

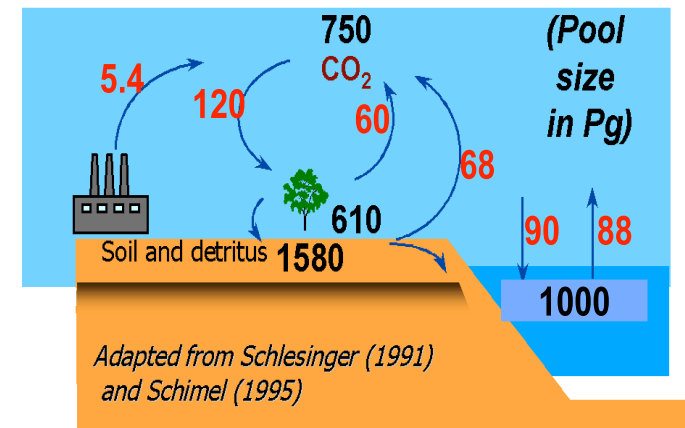
Life Under Your Feet

- **Role of the soil in Global Change**

- *Soil CO₂ emission thought to be >15 times of anthropogenic*
- *Using sensors we can measure it directly, in situ, over a large area*

- **Wireless sensor network**

- *Use many wireless computers (motest), with 10+ sensors each, monitoring*
 - Air +soil temperature, moisture, ...
 - Few sensors measure CO₂ concentration
- *Long-term continuous data, >20M measurements/year*
- *Complex database of sensor data, built from the SkyServer*
- *Data on SensorNet*



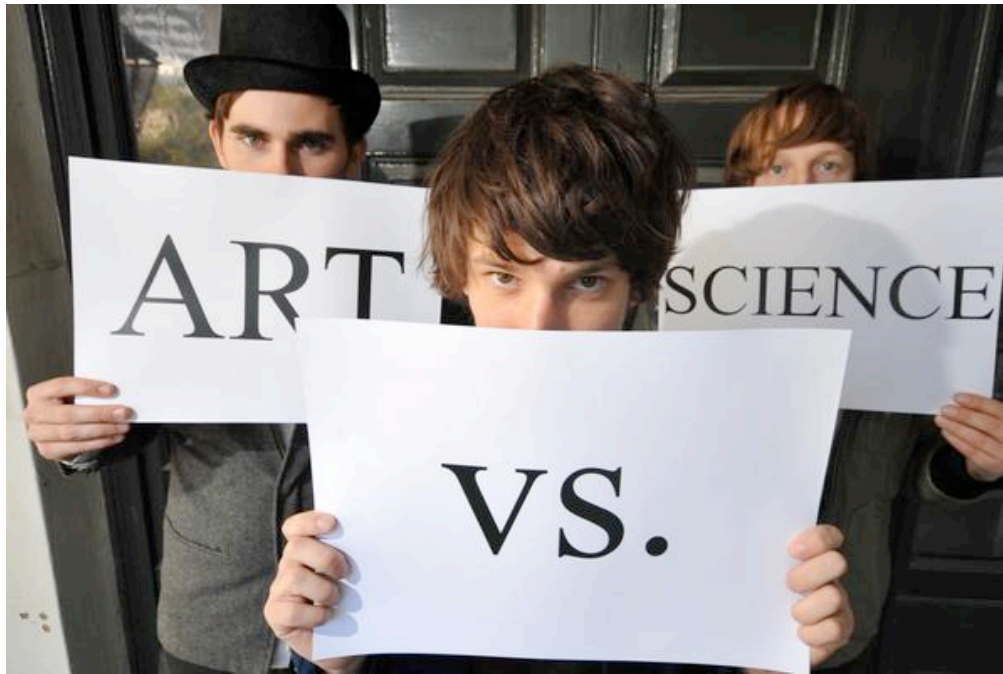
with K.Szlavec (Earth and Planetary), A. Terzis (CS)

<http://lifeunderyourfeet.org/>



Roman Forum, Western End, ca. 400AD, copyright Regents of the University of California

- Scholarly information infrastructure
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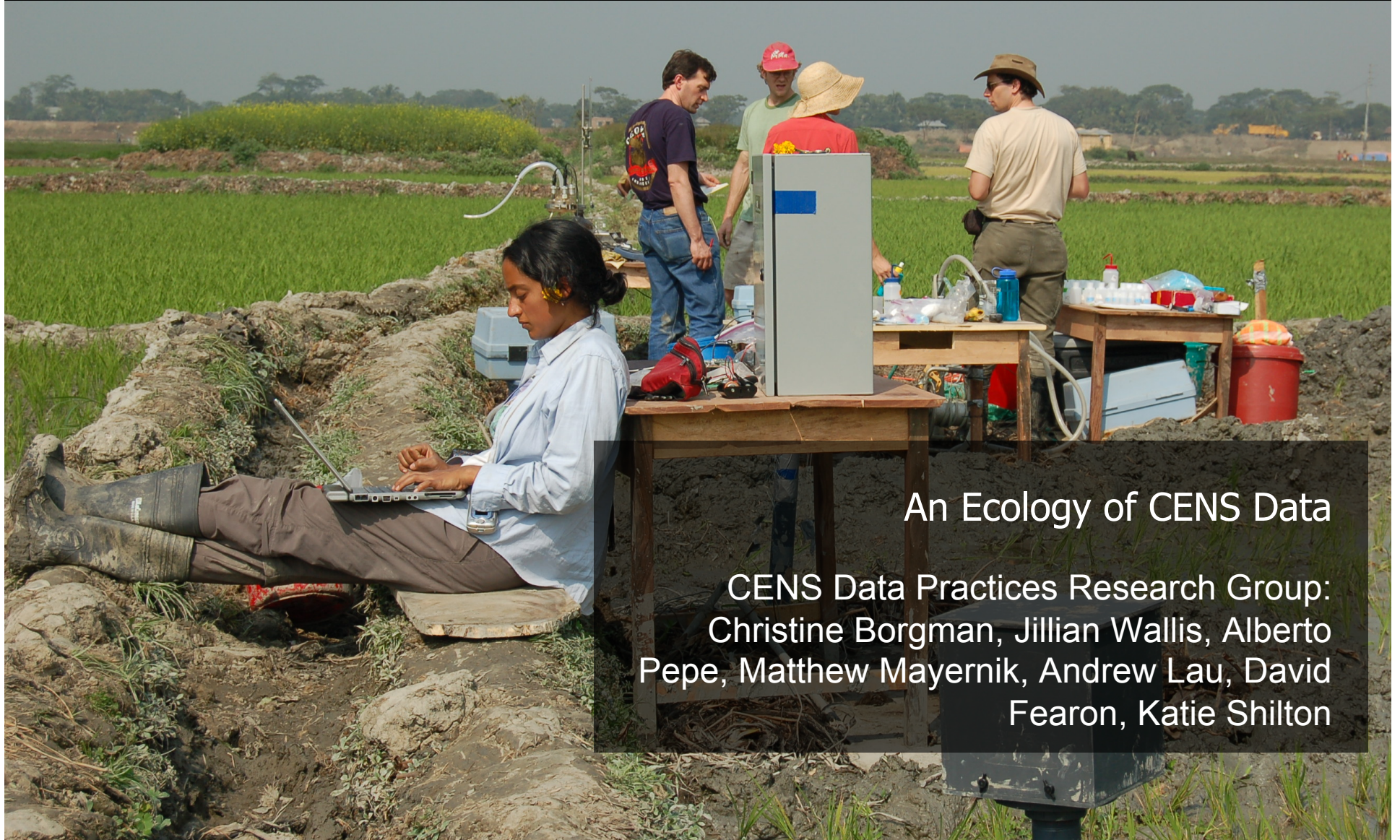
http://farm2.static.flickr.com/1207/707625876_46aa44851f_o.jpg





CENTER FOR EMBEDDED NETWORKED SENSING

UCLA USC UCR CALTECH UCM



An Ecology of CENS Data

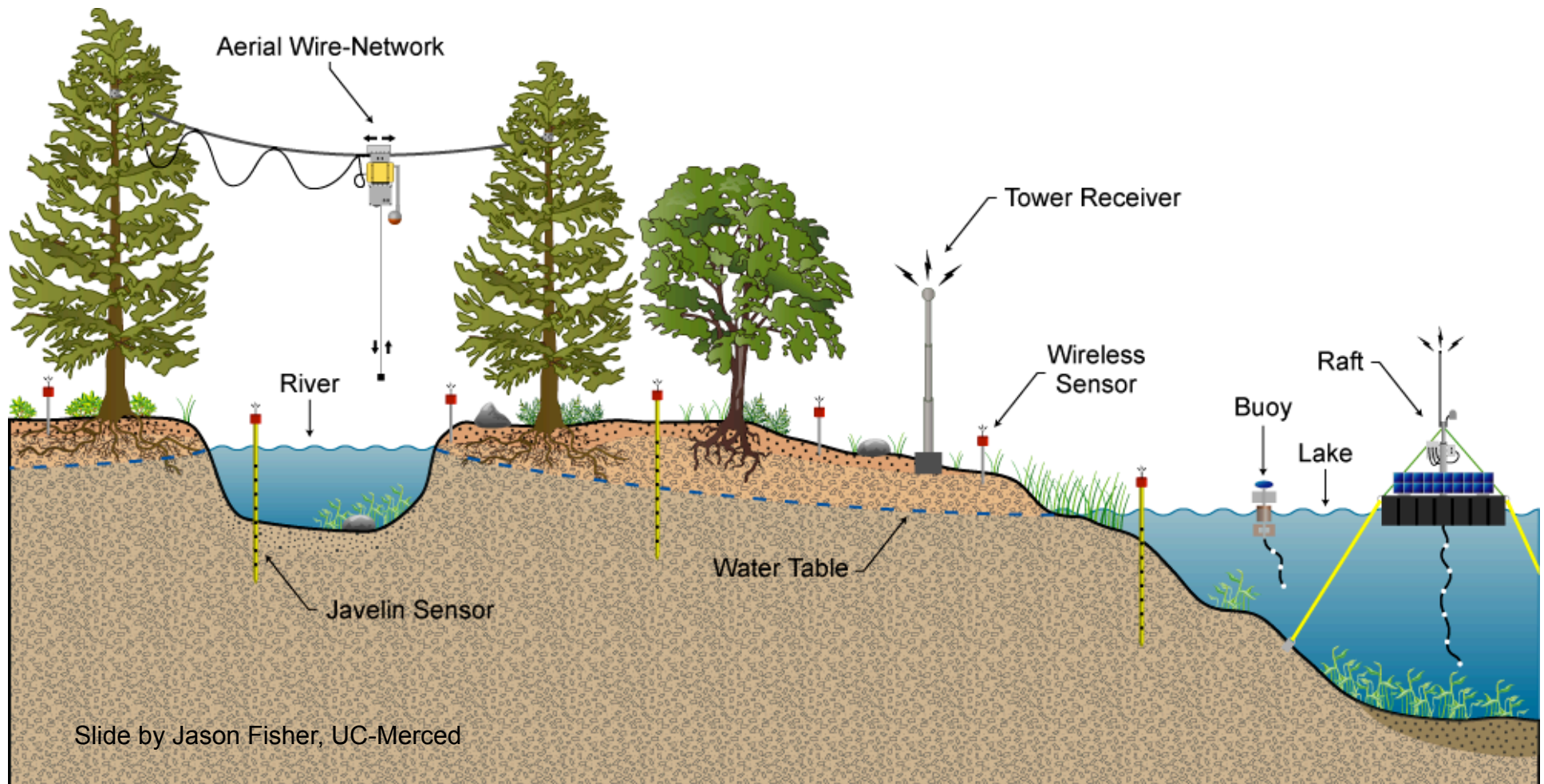
CENS Data Practices Research Group:
Christine Borgman, Jillian Wallis, Alberto
Pepe, Matthew Mayernik, Andrew Lau, David
Fearon, Katie Shilton



Field Deployment of Embedded Sensor Networks

CENTER FOR EMBEDDED NETWORKED SENSING

UCLA USC UCR CALTECH UCM



Slide by Jason Fisher, UC-Merced



Sharing CENS research data

CENTER FOR EMBEDDED NETWORKED SENSING

UCLA USC UCR CALTECH UCM

- **Research questions:**
 - What are CENS data?
 - When, how, and with whom will they share data?
 - What contextual information is necessary to interpret the data?
 - What resources exist to provide metadata?
- **Application of results:**
 - Architecture to capture, manage, and provide access to CENS data
 - Leverage data resources for research and learning



Documenting Data for Interpretation

CENTER FOR EMBEDDED NETWORKED SENSING

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- ***“Temperature is temperature.”***
- ***“There are hundreds of ways to measure temperature. ‘The temperature is 98’ is low-value compared to, ‘the temperature of the surface, measured by the infrared thermopile, model number XYZ, is 98.’ That means it is measuring a proxy for a temperature, rather than being in contact with a probe, and it is measuring from a distance. The accuracy is plus or minus .05 of a degree. I [also] want to know that it was taken outside versus inside a controlled environment, how long it had been in place, and the last time it was calibrated, which might tell me whether it has drifted..”***



What are CENS Data?

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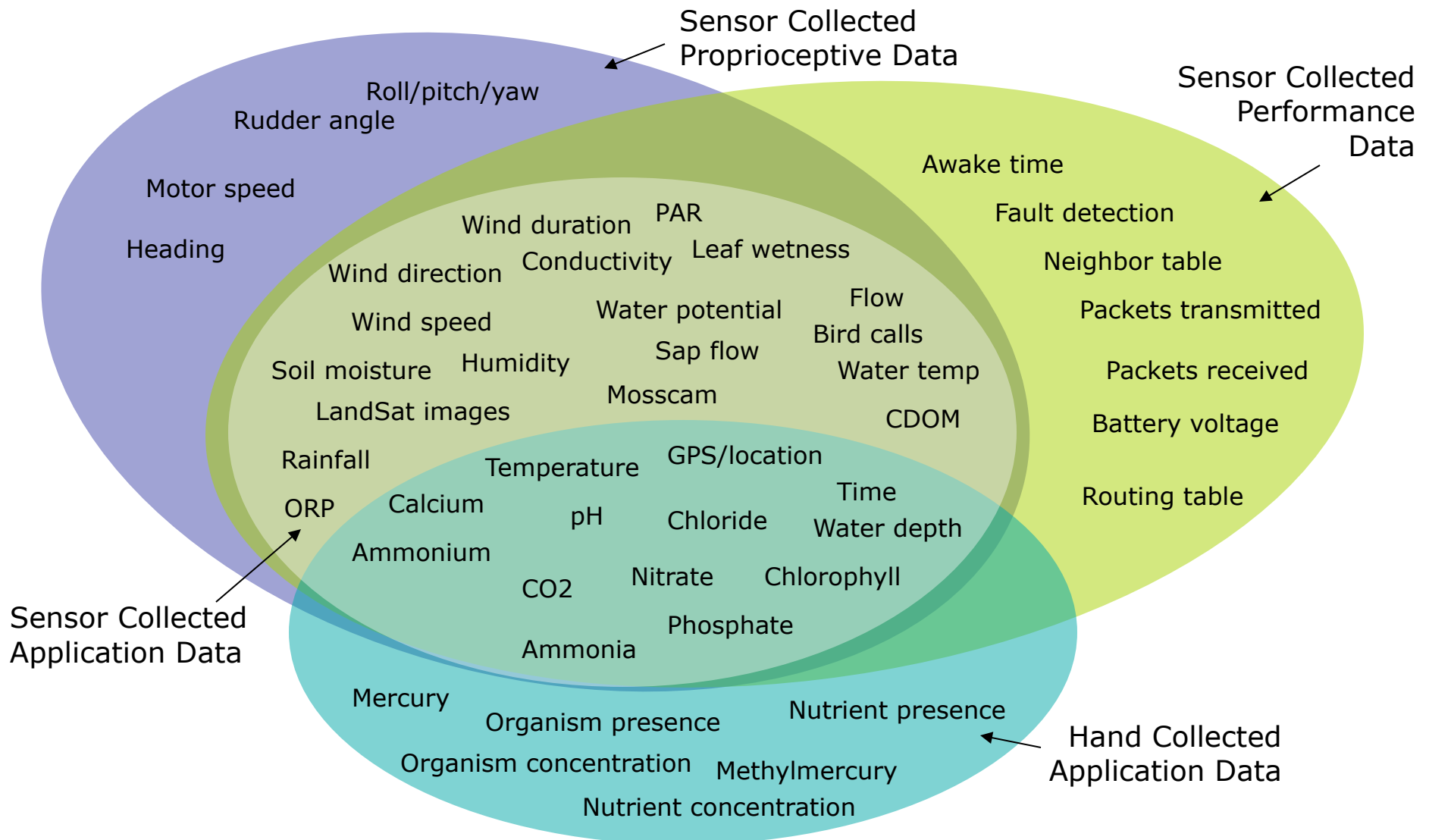


Figure by Jillian Wallis, UCLA



Artifacts and the Scientific Life Cycle

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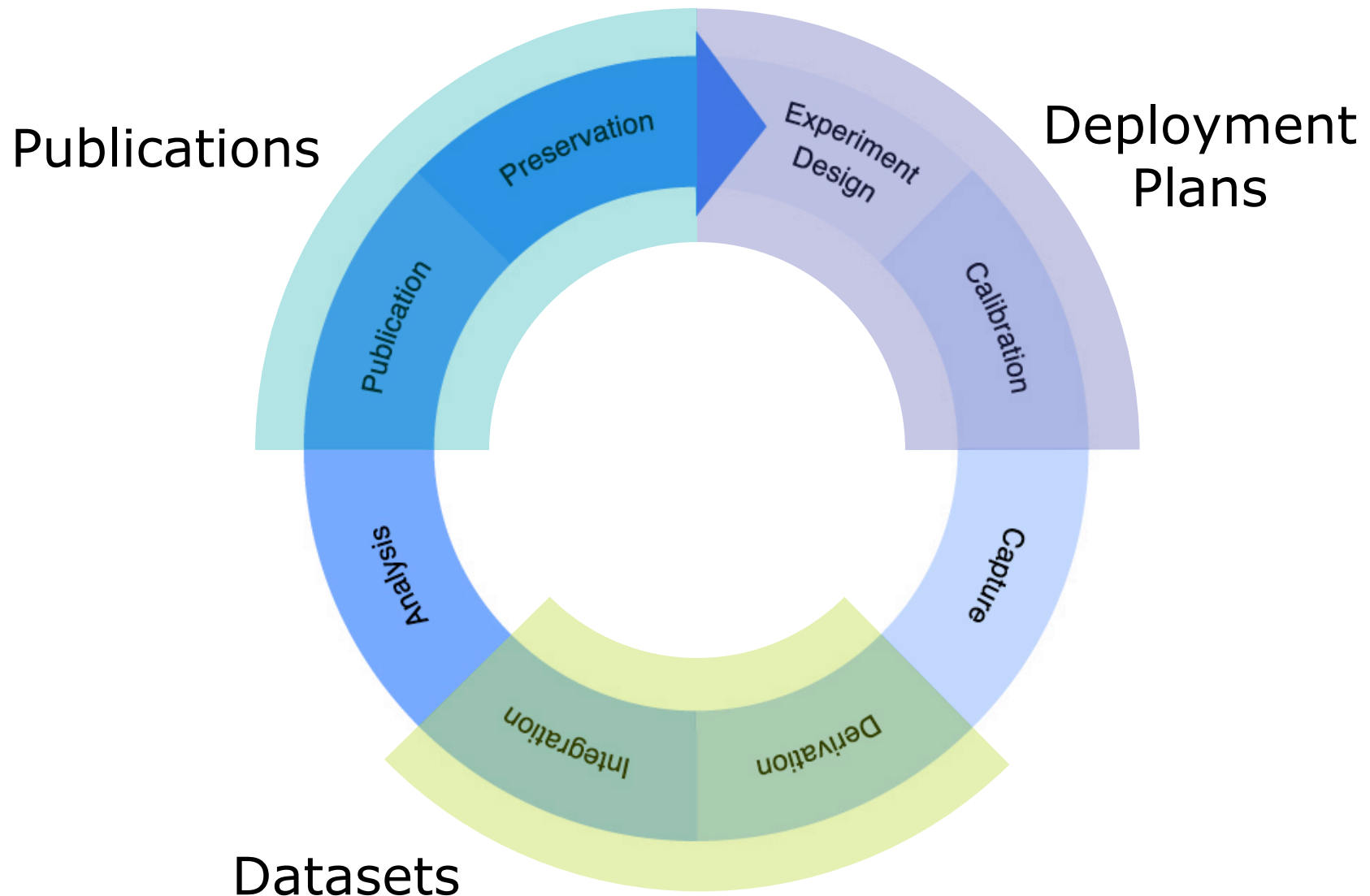


Figure by Jillian Wallis, UCLA



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Artifacts and the Scientific Life Cycle

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[0906.2549] Technology to Represent Scientific Practice: Data, Life Cycles, and Value Chains

http://arxiv.org/abs/0906.2549

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LAT Los Angeles Times - News fro... (Untitled) [0906.2549] Technology to Rep...

arXiv.org > cs > arXiv:0906.2549

Computer Science > Digital Libraries

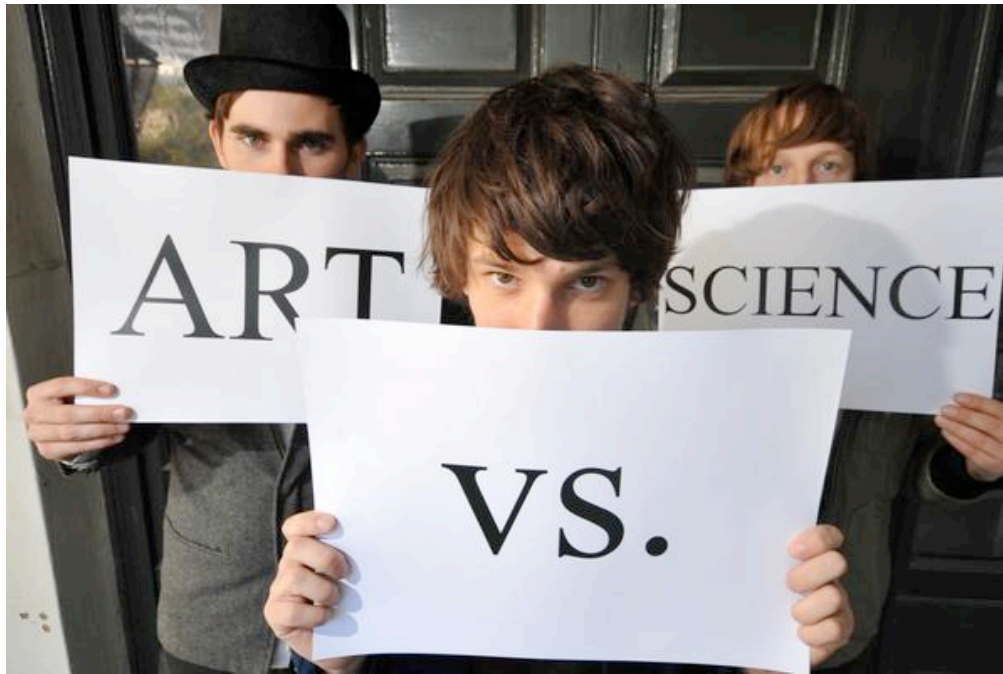
Technology to Represent Scientific Practice: Data, Life Cycles, and Value Chains

Alberto Pepe, Matthew Mayernik, Christine L. Borgman, Herbert Van de Sompel

(Submitted on 14 Jun 2009)

Datasets

- Scholarly information infrastructure
- Science {and, or, vs} humanities



- Publication practices
- Data
- Research methods
- Collaboration
- Incentives
- Learning

- Call to Action

Scholars' incentives to share

- Open science, scholarship
- Recognition
- Collaboration
- Reciprocity
- Coercion



Image source:
[www.buffaloworks.us/ images/sharing%20orangs.jpg](http://www.buffaloworks.us/images/sharing%20orangs.jpg)

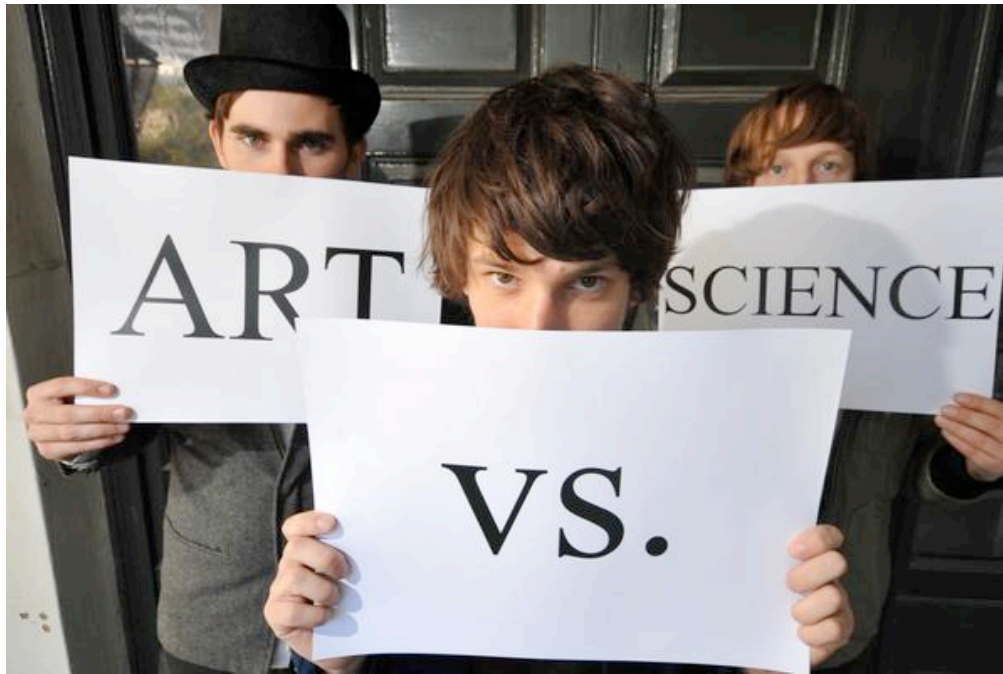
Incentives *not* to share



Image source: www.buildingsrus.co.uk/.../target1.htm

- Rewards for publication
- Effort to document data
- Competition, priority of claims
- Intellectual property
 - Control over data and sources
 - Access to data and sources
 - Definitions of data

- Scholarly information infrastructure
- Science {and, or, vs} humanities



- Publication practices
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- Call to Action

Fostering Learning in the Networked World:

The Cyberlearning
Opportunity and Challenge



*A 21st Century Agenda for the
National Science Foundation*

Report of the NSF Task Force on Cyberlearning
July 2008

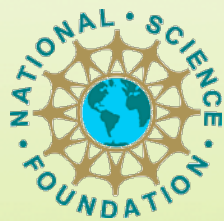
Task Force Charge

Advisory Committees

- Directorate for Education and Human Resources
- Office of Cyberinfrastructure

Task Force

- Opportunities
- Research questions
- Partners
- Strategies
- Existing resources



NSF's
US-based
Charter

STEM

Science

Technology

Engineering

Mathematics

SBE

Social
Science

Behavioral
Science

Economics

Arts

Humanities

What Is Cyberlearning?

- The use of *networked* computing and communications technologies to support learning
- Interactions among communities of learners across space and time
- Customized interaction with diverse materials, on any topic, at any age



Why Is Cyberlearning Important?

- Leverages learning through
 - Communication technologies
 - Students' technology skills
- Extends capacity of educational institutions into life-long learning opportunities
 - Increases public understanding of science
 - Prepares citizens for complex, evolving, global challenges

War

Recession

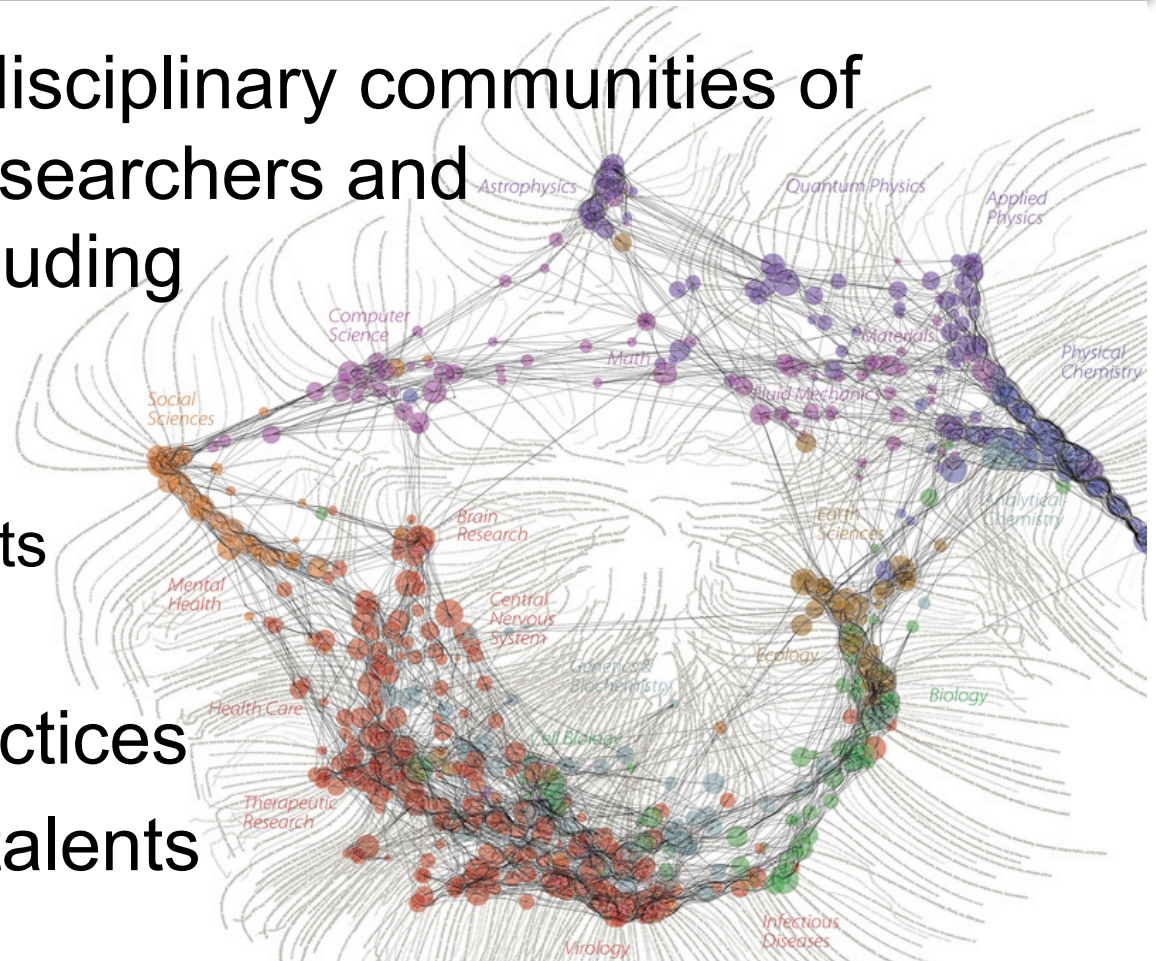
Global Warming

Epidemics

Poverty

Build a vibrant cyberlearning field

- Promote cross-disciplinary communities of cyberlearning researchers and practitioners including
 - Technologists
 - Educators
 - Domain scientists
 - Social scientists
- Publish best practices
- Recruit diverse talents



Relationships Among Scientific Paradigms

(Credit: Research & Node Layout: Kevin Boyack and Dick Klavans (mapofscience.com);
Data: Thompson ISI; Graphics & Typography: W. Bradford Paley (didi.com/brad); Commissioned Katy Börner (scimaps.org))

Instill a “platform perspective”

- Platform = shared, interoperable designs of hardware, software, and services
- Incorporate and support
 - New technological innovations
 - Fully tested modules for classroom use
- Widely usable now and in the future
- Guidance from expert panel



Enable Students to Use Data

- **Strategy:** Transforming STEM disciplines and K–12 education
 - New ways of looking at and understanding content
 - Preparing students for “computational thinking”
- **Opportunity:** Teaching students and teachers how to harness large amounts of data
 - Scientific research
 - Responsible use of data



Promote open educational resources

- Make materials available on the web with permission for unrestricted reuse and recombination
- New proposals should plan to make their materials available and sustainable

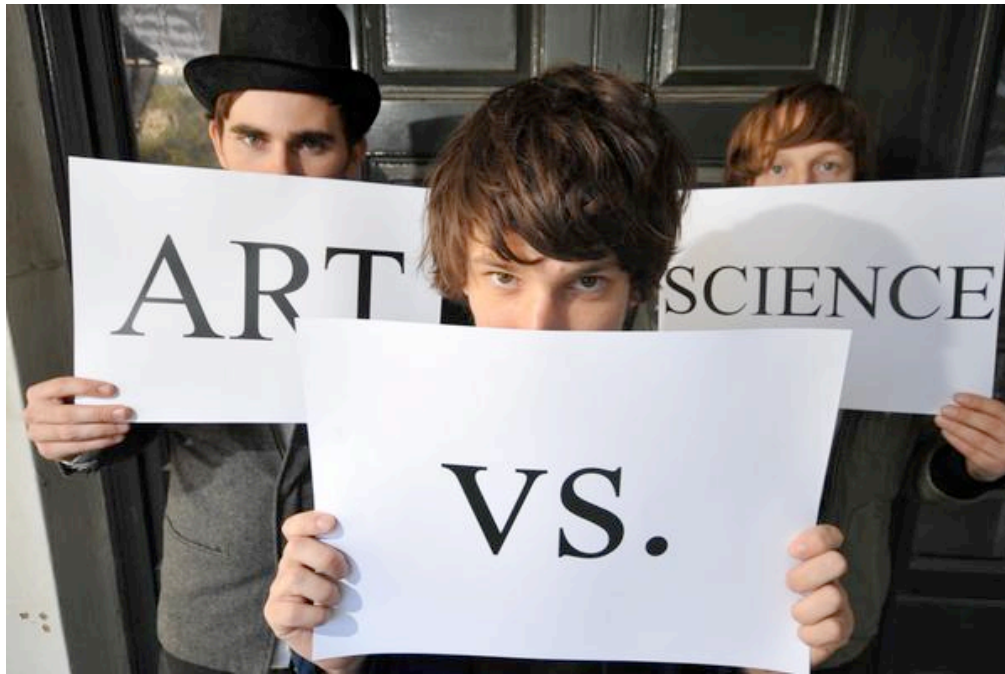


Why openness matters

- Interoperability trumps all
 - Import and export in open formats
 - Mixup and mashup
 - Add value
 - Avoid lock in
- Discoverability of related
 - Documents
 - Data
 - Assorted digital objects
- Usability and reusability
 - For research
 - For learning



- Scholarly information infrastructure
- Science {and, or, vs} humanities



- Publication practices
- Data
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- Collaboration
- Incentives
- Learning

- Call to Action

I'm finding that something as simple as constructing my maps of related concepts are not easily applied to primary sources in digital libraries.

So what use are the digital libraries, if all they do is put digitally unusable information on the web? The digital libraries don't offer a platform for traditional note taking, much less for larger scale analysis, either quantitative or qualitative.



Kimberly Garmoe, UCLA doctoral student in history, personal communication, June 8, 2009

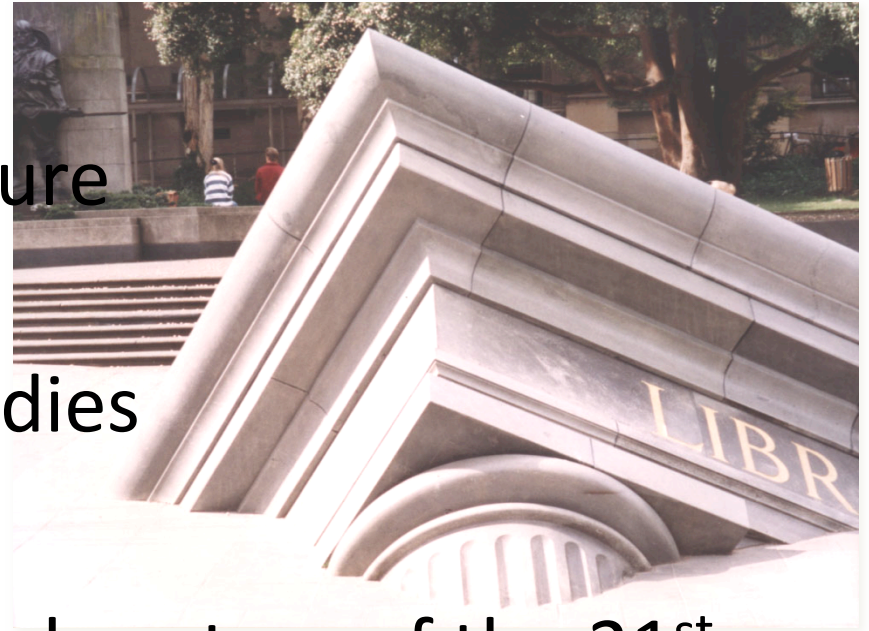
Call to Action: Lessons from Science

- Publication practices: *Increase speed and scope of dissemination through online publishing and open access*
- Data: *Define, capture, manage, share, and reuse data*
- Research methods: *Adapt practices to ask new questions, at scale, with a deluge of data*
- Collaboration: *Find partners whose expertise complements yours, listen closely, and learn*
- Incentives: *Identify best practices for documenting, sharing, and licensing humanities content*
- Learning: *Build a vibrant digital humanities community, starting in the primary grades*
- Generally: *Err toward openness, reusability, and generalizability*



Call to Action: Research questions / problems

- What are data?
- What are the infrastructure requirements?
- Where are the social studies of digital humanities?
- What is the humanities laboratory of the 21st century?
- What is the value proposition for digital humanities in an era of declining budgets?





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UCLA Dress Rehearsal

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