towards
an internet science

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1. **in the beginning**
   a few pioneers

2.
BERKMAN CENTER FOR INTERNET & SOCIETY
AT HARVARD UNIVERSITY

Nexa Center for Internet & Society
Politecnico di Torino

two centers

3. **web/Internet science**
   a new discipline?

1. in the beginning
a few pioneers

in the mid '90s
when the Web took off,
some people in academia
thought that
the Internet was <u>not</u> simply
"yet another new technology"
and... decided
to take (academic) action

what was really **new**?

#1

a decentralized, open, global communication infrastructure had never been seen before

#2

**never before humans had collaboratively and freely created such
a large cognitive "space"**

possible issues of interest:

**who controls the Net?
can the Net be controlled?
what effect on people?
what effect on politics?
what happens to copyright?
should intermediaries be liable?
why wikipedia succeeded where
other had failed?
etc.**

or...

but back to the "some people"
in the mid '90s

a story that, of course,
involves many people,
but please allow me
my personal pick

Charles Nesson

Jonathan Zittrain

Lawrence Lessig

mostly law professors
with technical background

15

(

16

why lawyers?

perhaps because sensitive to power issues: "who can do what and at what conditions?"

moreover, some lawyers tend to be rather good at interdisciplinary research

(at least, in the USA)

"[...] However, the same conditions that deprive legal scholars from the rigors of the scientific disciplines **allow them to develop exciting transdisciplinary ideas with a speculative freedom that is simply not open to an economist, psychologist, or other member of the standard disciplines.**

We can learn especially much when the scholar concerned has delved deeply in the professional literature, and **wields the analytical tools** with deftness and insight, **yet without the grim tenacity of maintaining disciplinary boundaries so characteristic of the disciplinary academic**. [...]"

(Herbert Gintis, an Amazon.com reviewer of a book by Eric Posner)

)

in any case, the movement
starts in law schools,
but fairly quickly becomes
multidisciplinary

2. berkman (& nexa)
two centers

BERKMAN CENTER FOR INTERNET & SOCIETY
AT HARVARD UNIVERSITY

est. 1998 (1996)

*"Exploring cyberspace,
sharing in its stydy
and pioneering its development"*

The Berkman Center's mission is
to explore and understand cyberspace;
to study its development, dynamics, norms, and
standards; to assess the need or lack thereof
for laws and sanctions.

We are a research center, premised on the
observation that what we seek to learn is not
already recorded.
Our method is to build out into cyberspace,
record data as we go, self-study, and share.

Our mode is entrepreneurial nonprofit.

a few research topics:
✦ Internet Censorship/Filtering
✦ Russian blogosphere
✦ Youth and Media
✦ Broadband policy
✦ Digital Public Library of America
(the list goes on and on, check the website!)

a few spin-offs:
✦ Global Voices
✦ Creative Commons
✦ stopbadware.org

ABOUT   PEOPLE   RESEARCH   PUBLICATIONS   TEACHING   EVENTS   INTERACTIVE   NEWSROOM   GET INVOLVED

BERKMAN CENTER FOR INTERNET & SOCIETY
AT HARVARD UNIVERSITY

exploring cyberspace, sharing in its study & pioneering its development

law, technology, innovation & knowledge
We seek to be an honest broker in the conversations about the future of the Internet and related technologies.

CLOSE

Berkman Buzz: February 17, 2012
Help Radio Berkman, Apple's new Gatekeeper, the limits of screen culture, and more...in this week's Buzz. **more >**
17 feb 2012

RB 190: Your Date, Reverse Engineered
Until everyone started using the net to date sociologists didn't have much information to go by when trying to figure out the beautiful process of human courtship. But dating sites are the 2nd leading source for modern relationships. And the data collected by dating sites sheds some light on how the heck people are getting together in the first place. Berkman Fellow, Harvard PhD Candidate, and Friend of the Show Kevin Lewis dug into some of this data and shares his amazing findings on how folks are pairing up online. **more >**
15 feb 2012

The Promises of Web-based Social Experiments; The Past & Future of the 'Arab Spring'; Online Consultation & Democratic Info

featured events
wadah khanfar: "one year after mubarak: the past and future of the 'arab spring'"
wadah khanfar (sharq forum) followed by a dialogue with joi ito (mit media lab), ethan zuckerman (center for civic media), and mohamed nanabhay, (al jazeera english)
more >

upcoming events
the promises of web-based social experiments
jerome hergueux, berkman center fellow
21 feb 2012
online consultation and democratic information flow
peter m. shane, jacob e. davis and jacob e. davis ii chair in law at the ohio state university's moritz college of law & visiting professor of law at

Q Search

welcome
our mission
what berkman does
cyberlaw clinic
for students and clients
recommended readings
a syllabus to start your journey

join our community
sign up for our mailing lists, contact us, explore our courses, or check out current job openings.

projects
blogging common
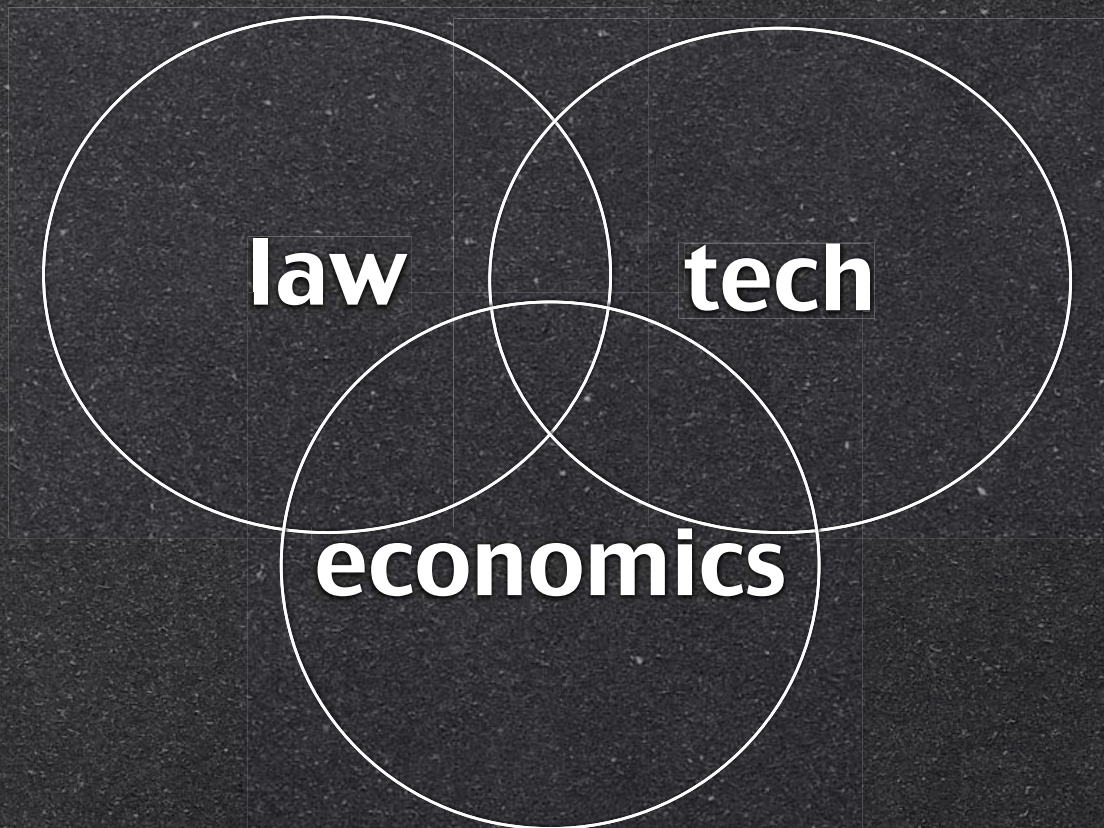broadband
chilling effects

Nexa Center for Internet & Society
Politecnico di Torino

est. 2006 (2003)

"Studying the Internet, exploring its potential and experimenting new ideas"

law

tech

economics

Faculty Co-Directors
Trustees
Managing Director
Staff
Fellows

Creative Commons Italy
(2003-present)

Harvard Internet Law Program
(2005)

Servizio Licenze Libere
(2006-present)

EU COMMUNIA
(2007-11)

University & Cyberspace
(2010)

dati.piemonte.it
(2010-present)

EU Legal Aspects of PSI
(2010-12)
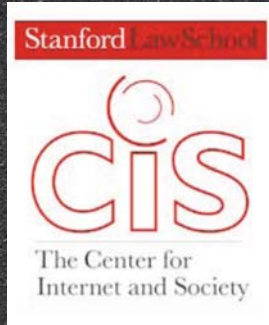
Net Neutrality Bot
(2010-present)

A few research topics:

✦ Network Neutrality (http://neubot.org)
✦ Digital Public Domain
✦ Open Data
✦ Copyright 2.0
✦ Open Access
✦ Online Anonymity
✦ Cloud Computing
✦ Web Geography

**the network of
"internet & society" centers
is growing**

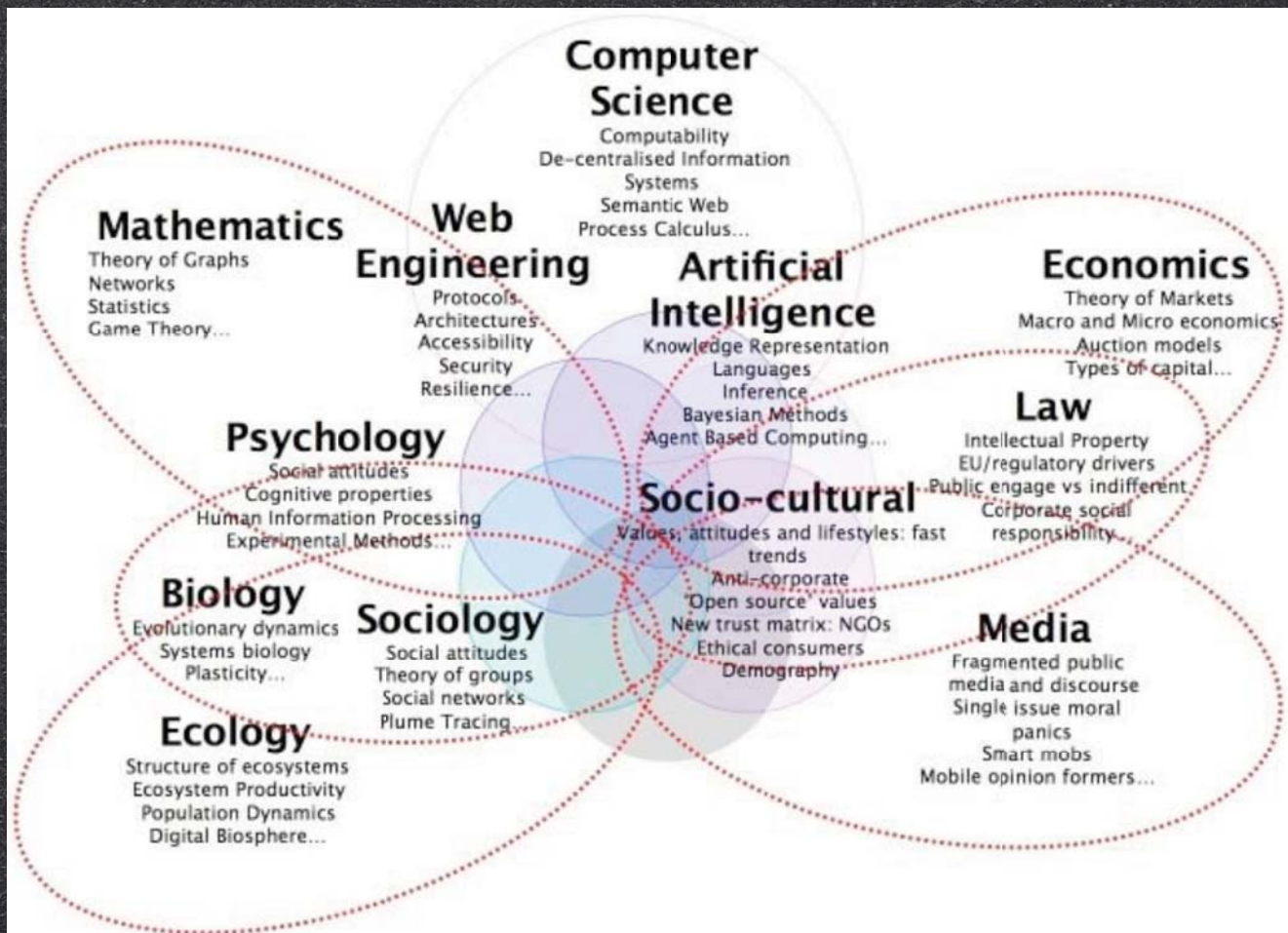# 3. web(internet) science
a new discipline?

Tim Berners-Lee

Computer Science
Computability
De-centralised Information
Systems
Semantic Web
Process Calculus...

Mathematics
Theory of Graphs
Networks
Statistics
Game Theory...

Web Engineering
Protocols
Architectures
Accessibility
Security
Resilience...

Artificial Intelligence
Knowledge Representation
Languages
Inference
Bayesian Methods
Agent Based Computing...

Economics
Theory of Markets
Macro and Micro economics
Auction models
Types of capital...

Law
Intellectual Property
EU/regulatory drivers
Public engage vs indifferent
Corporate social
responsibility...

Psychology
Social attitudes
Cognitive properties
Human Information Processing
Experimental Methods...

Socio-cultural
Values, attitudes and lifestyles: fast
trends
Anti-corporate
Open source' values
New trust matrix: NGOs
Ethical consumers
Demography

Biology
Evolutionary dynamics
Systems biology
Plasticity...

Sociology
Social attitudes
Theory of groups
Social networks
Plume Tracing...

Media
Fragmented public
media and discourse
Single issue moral
panics
Smart mobs
Mobile opinion formers...

Ecology
Structure of ecosystems
Ecosystem Productivity
Population Dynamics
Digital Biosphere...

A Framework for Web Science

Tim Berners-Lee[1], Wendy Hall[2],
James A. Hendler[3], Kieron O'Hara[4],
Nigel Shadbolt[4] and Daniel J. Weitzner[5]

[1] Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology
[2] School of Electronics and Computer Science, University of Southampton
[3] Department of Computer Science, Rensselaer Polytechnic Institute
[4] School of Electronics and Computer Science, University of Southampton
[5] Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology

Abstract

This text sets out a series of approaches to the analysis and synthesis of the World Wide Web, and other web-like information structures.

"Web Science, the **science of decentralised information systems**. Web Science is required both as a way to understand the Web, and as a way to focus its development on key communicational and representational requirements."

"We need to understand these **evolutionary and developmental forces**. Without such an appreciation opportunities for adding value to the Web by facilitating more communicative and representational possibilities may be missed. **But development is not the whole of the story**. Though multi-faceted and extensible, the Web is based on a set of **architectural principles which need to be respected**."

"A research agenda that can help **identify what needs to stay fixed and where change can be profitable** is imperative. This is **the aim of Web Science**, which aims to map how decentralised information structures can serve these scientific, representational and communicational requirements, and to produce designs and design principles governing such structures."

"**Examples of basic architectural decisions that underpin the Web include: the 404 error**, which means that failure to link to a resource doesn't cause catastrophic failure; **the use of the Uniform Resource Indicator (URI)**; and the full exploitation of the **pre-existing Internet infrastructure** (such as the Domain Name System) as the platform on which the Web was built. **Standards** are also crucial, and the World Wide Web Consortium's (W3C) work of creating and recommending standards while maintaining stakeholder consensus shows that **engineering needs to go hand in hand with a social process of negotiation**.

some established research funders are starting to notice

http://internet-science.eu

conclusions

1. behind the hype, the Internet has some aspects which are truly new and which deserve to be studied;
2. many Internet issues require a multidisciplinary approach;
3. a new discipline is perhaps emerging to provide a "home" to research that otherwise may find it difficult to be recognized

thank you

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