

Embedded

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Design|Media Art
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Embedded networked sensing

*Connecting the Internet and the physical world
and transforming the way we live*

Expanding on the concept of the Internet, large-scale, distributed systems, composed of smart wireless sensors and actuators embedded in the physical world, will eventually connect the entire physical world to the virtual world.



CENTER FOR EMBEDDED NETWORKED SENSING



Connecting the Internet and the physical world...

Buildings could detect their own structural faults
and respond in real time to seismic events



www.cens.ucla.edu



Connecting the Internet and the physical world...

Institutions and individuals could reliably measure
toxic levels at very low concentrations and trace
contamination back to its source



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Connecting the Internet and the physical world...

Buoys along the coast could alert surfers, swimmers and fishermen to dangerous bacterial levels in the water



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Connecting the Internet and the physical world...

We could infuse complex and endangered ecosystems with chemical, physical, acoustic and image sensors to continuously track global change



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Connecting the Internet and the physical world...

Dangerous bacterial and contaminant levels could be detected on the farm through dense sampling, instead of “in the market” through sparse sampling



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Outline

- Sensor networks and the data scientist
- Human-centered precursors to ENS
- Blogging and vlogging and localized reporting
- Citizen-initiated sensing
- Distance and touch

Sensor networks and a data scientist

- Broadly, sensor networks consist of measurement devices placed in the physical world
- In many current deployments these devices are connected to a central local network (wired or wireless); in the future it is believed they will operate in a peer-to-peer fashion
- Papers in this area emphasize a fundamental tradeoff (forced by power constraints) between computation/observation and communication
- Old problems like function (surface) estimation and clustering take on new life in this constrained environment

Sensor networks and a data scientist

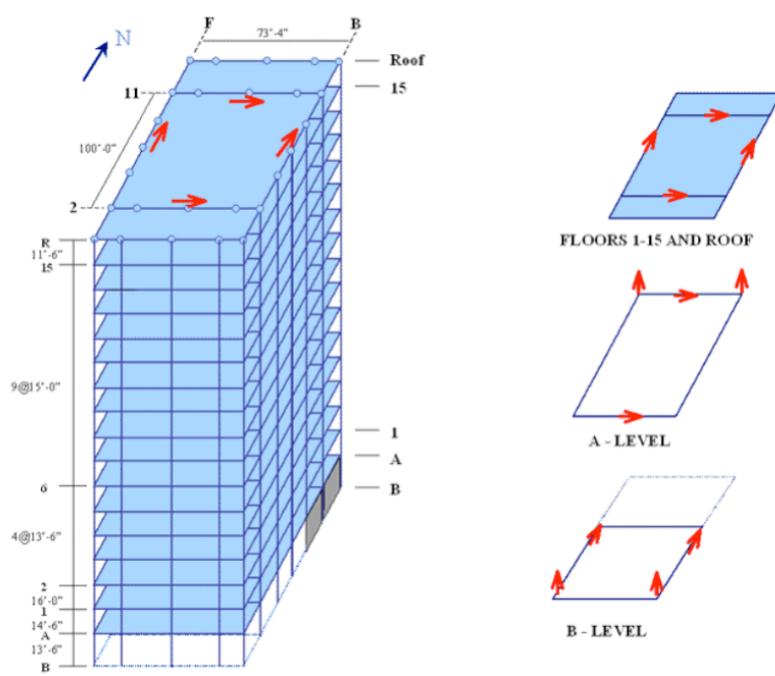
- Because of my rather bad bias, I tend to join projects that have the promise of producing data in some way
- I will start this talk by describing three such projects (briefly) that will hopefully give you the flavor of the kinds of problems that CENS is working on

Structural monitoring

Paul Davis, UCLA

Monica Kohler, UCLA

Andrew Baek, UCLA Statistics



Measurements of convenience

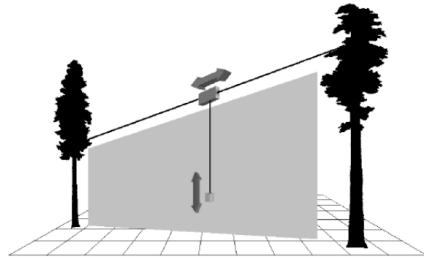
- Usually, data from this network puddle up at the rate of 100 samples per second (a few of these sensors actually report 500 times per second)
- Not much is done with the data until an earthquake or other (hopefully rare) seismic event takes place
- We are currently installing a system of monitors to track the elevators in the building; we can learn about the building as it goes through the (routine) task of just being a building

Networked Info-mechanical Systems (NIMS)

Bill Kaiser, UCLA

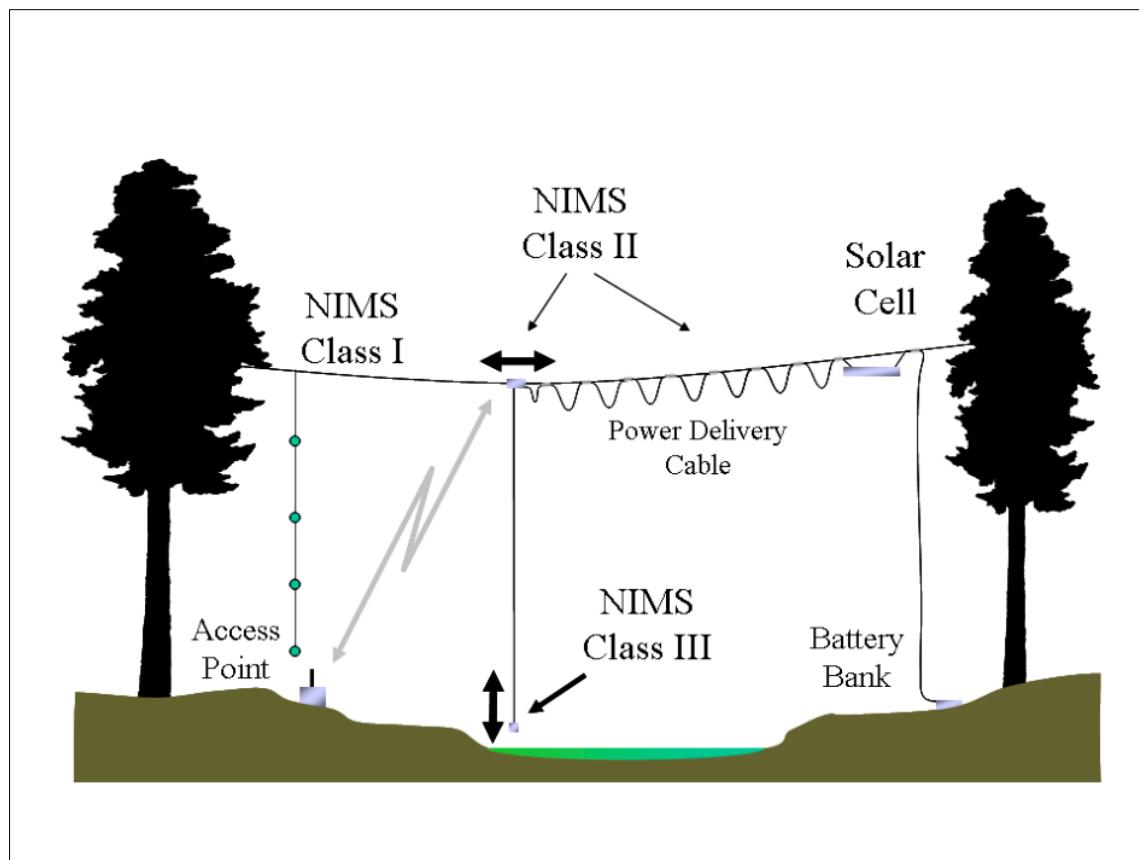
Mohammad Rahimi, USC

Deborah Estrin, UCLA





NIMS Wind River Canopy Crane Research Facility, Washington, 2003





James San Jacinto Mountain Reserve (near Idyllwild, California), since the end of March, 2004
(600' transect, vertical node equipped with a PAR sensor, a humidity sensor, a temperature sensor as well as a down-looking sonar sensor)

Roboduck (robotic air boats) networks

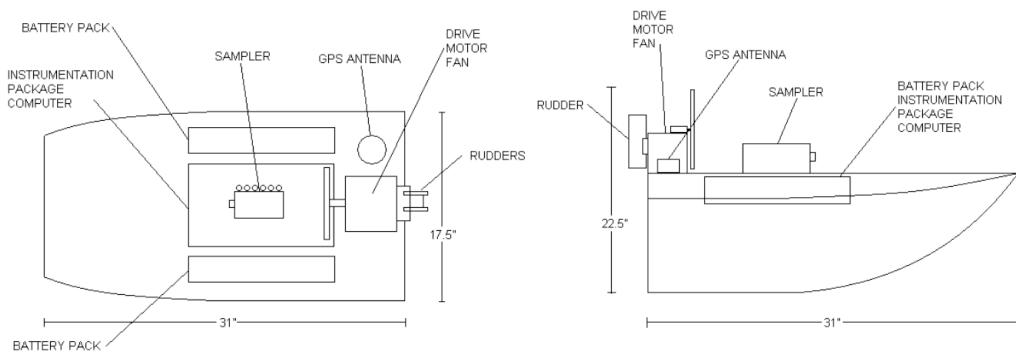
Gaurav Sukhatme, USC



Locating gradient sources and tracking them over time has important applications to environmental monitoring and studies of the ecosystem. We present an approach, inspired by bacterial chemo-taxis, for robots to navigate to sources using gradient measurements and a simple actuation strategy (biasing a random walk).

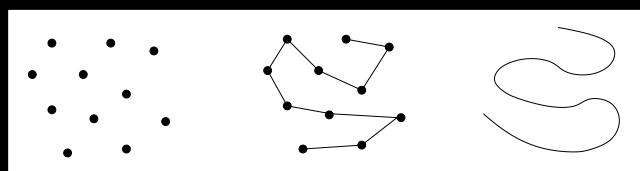
The strategy of such a bacteria-like robot can be summarized as “sense and move”. A robotic node executing a biased random walk has very small requirements in terms of memory since only the last sensor reading needs to be stored.

The ability to autonomously detect, locate and track such phenomena (the source of the induced gradient) would give scientists a tool to monitor and study ecosystems at an unprecedented level of detail. We are in particular motivated by the research goal to track the brown-tide algal blooms in nature and follow their migration over time. We plan to locate these algae and measure their concentrations using a chlorophyll sensor. Additional features which govern their abundance and survival in an area include temperature, nutrient concentrations etc. which we would monitor over time.



Adaptive sampling

- For NIMS and related projects, the question of sampling becomes interesting
- There is a natural tension between the characteristics of the sensors and the movement of the node
- There is also a tension between the liveliness of the phenomenon being observed and the autonomy of the robot
- There is an obvious link to the literature on continuous-time experimental design, to adaptive function estimation and even to biological models for searching and gradient following

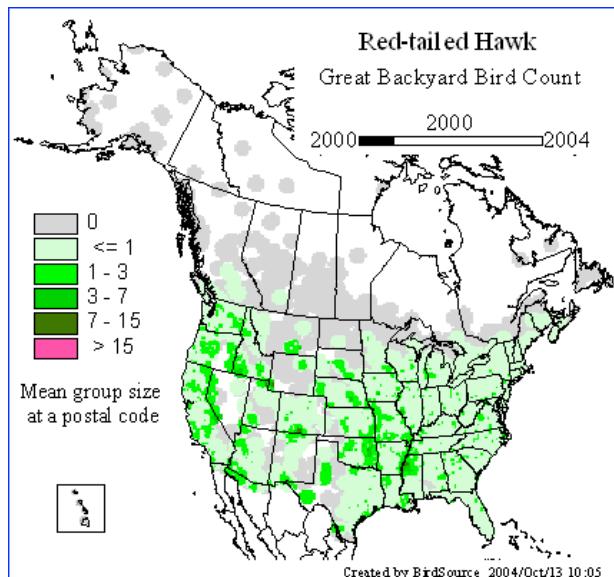


Networks of embedded citizen-sensors

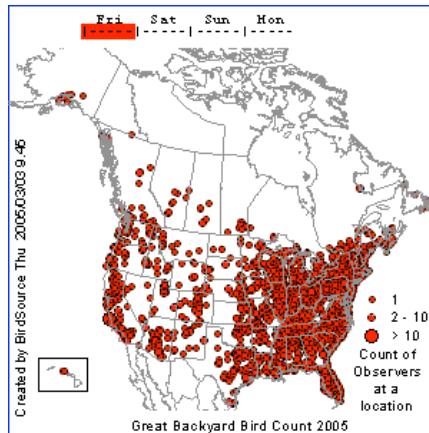
- Local expertise to help address global scientific questions
- Human identification and evaluation of phenomena
- Centralized data repositories allow citizen-sensors to share information and identify their contributions

THE GREAT BACKYARD BIRD COUNT

Scientists and bird enthusiasts can learn a lot by knowing where the birds are. Now that winter has gripped much of the continent, what are our birds doing? Bird populations are dynamic, they are constantly in flux. We want to take a snapshot of North American bird populations and YOU can help us. **Everyone's contribution is important.** It doesn't matter whether you identify, count, and report the 5 species coming to your backyard feeder or the 75 species you see during a day's outing to a wildlife refuge. Your data can help us answer many questions



THE GREAT BACKYARD BIRD COUNT



GBBC 2005 a great success thanks to you! This year's Great Backyard Bird Count was a great success, with over 50,000 checklists submitted, over 600 species seen, and more than 6 million individual birds counted. Thank you to everyone who participated!



Earthquake Hazards Program

This web site is intended to tap the abundant information available about earthquakes from the people who actually experience them. By taking advantage of the vast numbers of Internet users, we can get a more complete description of what people experienced, the effects of the earthquake, and the extent of damage, than traditional ways of gathering felt information. And best of all, with your help we can do so almost instantly.

Statistics for event 14131872

Total reports: 480
Number of zip codes: 59
Maximum intensity: III

6 miles WNW of Valencia, CA Mag: 3.6

Page: 1 2

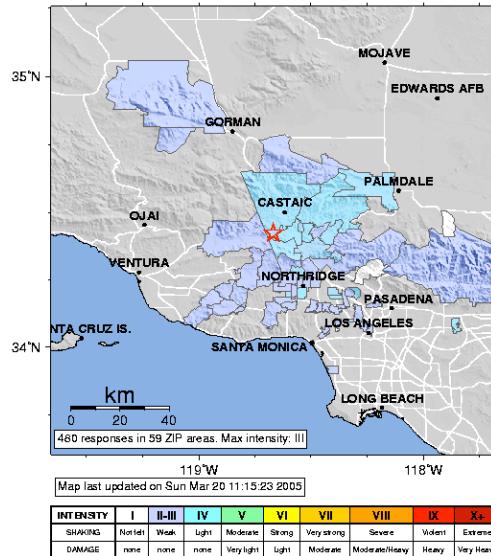
Community name	Zip code	Ave. dist. (km)	Ave. intensity	Reports
LOS ANGELES (CA)	90012	56.05	II	3
LOS ANGELES (CA)	90024	45.12	II	1
LOS ANGELES (CA)	90025	46.64	II	2
LOS ANGELES (CA)	90026	53.39	II	1
LOS ANGELES (CA)	90027	48.03	II	2
LOS ANGELES (CA)	90028	47.74	II	3
WEST HOLLYWOOD (CA)	90069	45.06	II	1
BEVERLY HILLS (CA)	90211	47.65	I	1
EL SEGUNDO (CA)	90245	61.29	II	2
SANTA MONICA (CA)	90401	48.07	II	1
TIJUNGA (CA)	91042	42.61	I	1
GLENDALE (CA)	91206	51.03	II	2
CALABASAS (CA)	91302	33.18	II	3
CANOGA PARK (CA)	91303	25.72	III	5
CANOGA PARK (CA)	91304	22.03	II	17
WINNETKA (CA)	91306	25.12	II	1
CHATSWORTH (CA)	91311	16.34	II	13



Earthquake Hazards Program

By contributing your experience of the earthquake, either immediately afterward, or whenever it is possible for you to do so, you will have made a contribution to the scientific body of information about this earthquake. You will also ensure that your area has been represented in the compilation of the shaking map. This is a two-way street. Not only will you add valuable information on the extent of ground shaking and damage, but in the process we hope you will learn more about how other communities fared and gain a greater understanding of the effects of earthquakes.

USGS Community Internet Intensity Map (6 miles WNW of Valencia, CA)
ID:14131872 12:23:07 PST MAR 14 2005 Mag=3.6 Latitude=N34.42 Longitude=W118.67



Networks of embedded citizen-sensors

- The connection to the physical world adds a dimension beyond the use of the web as communication channel; physical phenomena become anchors for activity and collaboration
- “In-network” processing and actuation are all driven by humans; these tasks are limited only by the participant’s skills at identifying and evaluating phenomena and perhaps by their attention span

Networks of embedded citizen-sensors

- While the data are ostensibly collected to form a “global view,” the data can also be used to compare localities or to search for specific local patterns
- The unintended consequences of data collection should be “old news” to the data mining community

The screenshot shows the homepage of the PlaneSpotting Network. The top navigation bar includes links for "Comments and Tips?", "Please mail us: admin at fyvb.de", and "307014 Visitors since 6/2004". The main content area features three search boxes: "SIMPLE SEARCH" (Airlines and Aircraft types dropdowns), "KEYWORD SEARCH" (Keyword(s) input field and "all fields" dropdown), and "PROFI SEARCH" (multiple dropdowns for All photographers, All countries/airports, All airlines, and All types). A sidebar on the left contains links for "Search", "Top photos", "Sections", "Specials", "Your photos", "Misc", and "Sponsored Links". A banner for "Boeing Aircraft For Sale" is visible at the bottom.

A familiar story

- Details of a CIA transport system were revealed when simple Google searches of the aircraft's tail number called up images from several different European airports
- The plane was registered to Aviatrans, an reports suggest it was once owned by Saddam Hussein
- The images at the right are examples of the images you can still find with simple searches (the image at the bottom was recorded at an airport in Switzerland)

* Example courtesy of Bill Kaiser

 MSNBC.com

No Secrets: Eyes on the CIA

Newsweek

March 7 issue - Aviation obsessives with cameras and Internet connections have become a threat to cover stories established by the CIA to mask its undercover operations and personnel overseas. U.S. intel sources complain that "plane spotters"—hobbyists who photograph airplanes landing or departing local airports and post the pix on the Internet—made it possible for CIA critics recently to assemble details of a clandestine transport system the agency set up to secretly move cargo and people—including terrorist suspects—around the world.

Google searches revealed that plane spotters Web-posted numerous photos of two private aircraft—one a small Gulfstream jet and the other a midsize Boeing 737—registered to obscure companies suspected of CIA connections. Some of the pictures were taken at airports in foreign countries where CIA activities could be controversial. When the 737 last year went through a change of tail number and ownership—a suspicious company in suburban Boston apparently transferred the plane to a similar company in Reno, Nev.—Internet searches of aviation and public-record databases disclosed details of the plane's new owners and registration number. One critical database, accessible via Google, was a central aircraft registry maintained by the government's own Federal Aviation Administration. A U.S. intel source acknowledged that the instant

Networks of embedded citizen-sensors

- Scientists and hobbyists are not the only communities that engage in organized observations
- Political movements have made use of this as well; the latest case comes from the UK

Introducing the Blair watch project

By Tom Hapgood / Photographs 05:50pm



Photograph: Stefan Rousseau/AFP/Getty
HB-IES

Devoted Guardian readers will have read Oliver Burkeman's [account](#) of trying to keep track of Tony Blair in Dorset South yesterday, in which he describes how misdirection sent reporters scampering across southern England, in a "meandering day-trip" in search of the prime minister.

Oliver writes: "Labour appears intent on pursuing a campaign strategy of severely limiting the exposure of the prime minister to media questioning, dismissing criticisms of this technique as the self-absorbed concerns of the 'Westminster village'."

Well, limited access means we need your help to keep up with Mr Blair. So today we announce the Blair Watch Project, where we ask you to send us your photos of the PM on the campaign trail. All pictures will appear on [our Flickr account](#) – which anyone can look at – with the best appearing here on the blog.

Networks of embedded citizen-sensors

- Detailed observation of people and their activities has long been a tool in the social sciences
- Such data collection has not always been top-down; rather, bottom-up movements have emerged out of a desire to “tell one’s own story”
- Surveillance v. Sousveillance?



Mass Observation

- Mass Observation was founded in the 1930's with the goal of constructing an image of "life" in Britain that was more accurate than what was offered by the popular press of the time
- The decision of Edward VIII to abdicate as King rather than give up his marriage to the American divorcee', Wallis Simpson, created a national crisis which motivated Mass Observation's founders to create a more accurate view of Britons



Tom Harrison



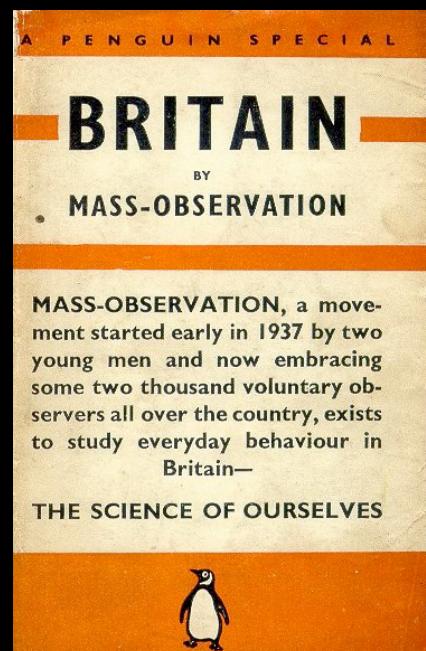
Humphrey Jennings



Charles Madge

The real observers in this case were the millions of people who were, for once, irretrievably involved in the public events. ***Only mass observations can create mass science.*** The group for whom I write is engaged in establishing observation points on as widely extended a front as can at present be organised. We invite the cooperation of voluntary observers, and will provide detailed information to anyone who wants to take part.

Charles Madge, letter to The New Statesman and Nation, January 2, 1937



THEY MAY BE WATCHING YOU

HAVE you ever been for the day to the seaside, or strolled on Hampstead Heath, or merely talked to a friend in a bus or tram, and suddenly realised that someone was recording your conversation in a little note book?

The chances are that the scribe was neither a plain-clothes detective, nor a lunatic, but merely a Mass-Observer. The chances are, also, that—if you hadn't a guilty conscience, in which case, doubtless, you melted unobtrusively away, fearing the worst—you turned on the recording angel, and said indignantly: "Here, what do you mean by eavesdropping like that? You ought to be ashamed of yourself," or words to that effect.

How We Behave

THEN, again, the chances are that you have been Mass-Observed and don't know it....

Mass Observation sets out to be a new science; or, rather, a new method of finding out scientific truths.

The originators of it reasoned that if a body of information were available as to why we do and say certain things, how we behave in special sets of circumstances, this would help us to know ourselves and other people better.

So they issued an appeal for helpers—people who would be willing to keep their eyes and ears open, and write down exactly what they saw or heard.

The first big thing they attempted was a survey of Coronation Day. Every Mass-Observer wrote down everything that happened to him or her on that day, down to the smallest detail. The published



Suddenly realized that someone was recording your conversation.

By MARION DEWHIRST

results made a most interesting record of just what the popular reaction is to this sort of ceremony.

Another survey—recorded in the recently published report of the first year's work in Mass-Observation (Lindsay Drummond, 3s. 6d.)—dealt with not one particular day, but a particular habit—cigarette-smoking.

Tappers or Non-Tappers

It was found that about 17 per cent. of smokers feel definite hostility to non-smokers, because a non-smoker does not seem "one of them"; that 44 per cent. of men and 64 per cent. of women smokers began to smoke purely because other people do.

Various smokers' habits were recorded. Fifty-four per cent. of smokers tap their cigarette before placing it in their mouths, 52 per cent. of "tappers" place the tapped end in their mouths, and 24 per cent. the untapped end—but hardly any of them can give a reason for their tapping!

At present the Mass-Observers are working on a Northern industrial town—Bolton. Public houses, football pools, the newspapers people read, the things they laugh at—all the details making up everyday life are being examined and tabulated.

Its Use?

THE use of it all? The machinery for an analysis of motives, feelings and behaviour, may become of inestimable service to us, living as we do in an age when, while the mechanical sciences have advanced tremendously, the social sciences have lagged far behind.

How We Behave

THEN, again, the chances are that you have been Mass-Observed and don't know it....

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Suddenly realized that someone was recording your conversation.

"We did not regard these people as being themselves scientists studying the masses, nor did we consider them as being a random sample of public opinion. Their position was something different. They were observers, untrained but shrewd, placed at vantage points for seeing and describing in their own simple language what life looks like in the various environments which go to make up England"

Madge & Harrison, 1939, p. 3

"Humphrey Spender wanted to photograph people going about their daily life. To avoid posed photographs, he hid his camera under his coat and cut holes in the coat pockets so that he could operate without being noticed." [1]

"In Bolton he attempted a [wide] range of subject matter, recording the life and culture of the working class. He photographed people on the streets, in pubs, washing hanging in the back alleys, children at play, processions, markets, in people's homes, christenings, Holy Communions, railway stations, public lavatories...." [2]



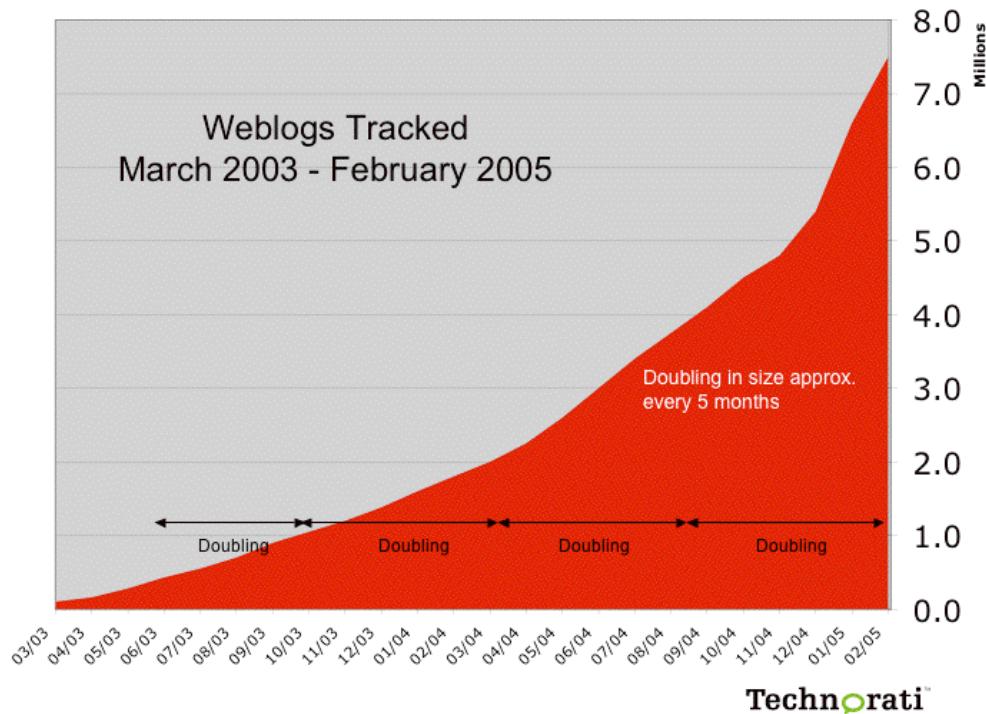


Blogging

- There are obvious comparisons between Mass Observation and current trends in blogging and vlogging
- While Mass Observation became a centralized “authority” on public opinion and behavior, blogging is much less organized
- However, the essential motivation, if not the basic techniques (enlisting diarists, cataloging via photography) are similar



LA 'LEVANTÁ' DE LOS MÓVILES. Esta Semana Santa, la 'levantá' de los pasos en las procesiones va acompañada de la 'levantá' de los móviles con cámara. En la imagen, la procesión del Cristo de la Sentencia de la cofradía de la Virgen de la Macarena en la 'Madrugá' sevillana. (Foto: EFE)



Blogging

- While this seems to be quite far from my original topic of sensor networks, consider the fact that blogs of this kind do enable “local” reporting
- From the sights of global conflict and natural disasters, we have read reports by bloggers and other first-hand amateur journalists
- Again, from the reports of citizen-sensors we build up a sense of a larger physical phenomenon

Extra Extra

Sunday, December 26, 2004

The sea, the sea



The sheer brute violence of that single wave is staggering. Every house and fishing boat has been smashed, the entire length of the east coast. People who know and respect the sea well now talk of it in shock, dismay and fear. Some work to do this week.

posted at 8:27 PM comments: 43

Archives

[September 2004](#)
[October 2004](#)
[November 2004](#)
[December 2004](#)
[January 2005](#)
[February 2005](#)
[March 2005](#)
[April 2005](#)

Feeling acquisitive?

Copyright © 2004-2005 Fred Robarts
Please include a link with any quote,
and ask permission to use my
pictures. All comments are very
welcome.

Blogs and “establishment” journalism

- It is undoubtedly beyond my topic to dwell on the relationship between blogging and the mainstream media
- However, in a recent talk on participatory media, Kenyatta Cheese commented that he does not differentiate between producers and consumers, but rather considers everyone to be a user with varying degrees of participation

Blogs and “establishment” journalism

- Blogs and their ilk blossomed because of easy authoring and publishing software; interface and protocol
- On the flipside, we still have the Web, with its capacity for linking and sharing, as well as powerful search engines for discovery

Slogging

- What would happen if sensing technology became as easy to use as a blog or a vlog?
- What would it mean for users to have “varying degrees of participation” in slogging?
- What would happen if a Web grows atop a collection of such sensor networks?
- Would we see communities spring up around data, around sensor logs?

A neighborhood monitors its own air or water quality

New images of urban life are already being considered in instrumented cities

The citizen-scientist?

- If blogs spawned citizen-editors and journalists, what might we expect from easy access to data collection technologies, to publishing and collaboration?
- How can we as “data scientists” contribute both through education as well as research, enabling more participatory users to make sense of extremely varied data types recorded under possibly unreliable circumstances

Some simple networks

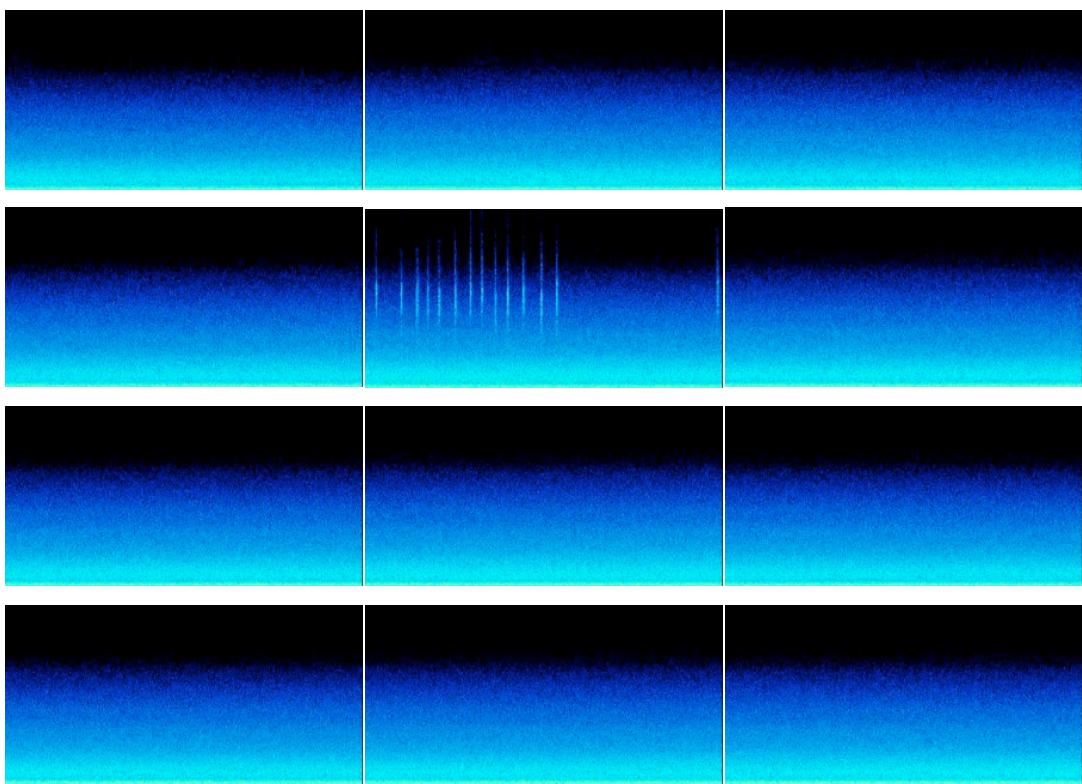
Remote Environmental Assessment Laboratory, Michigan State University (Stuart Gage)

The research hypothesis is that change detection measurement through acoustic sounds is correlated with changes in land use/land cover and affects ecological integrity. Human activities can alter the habitat and degrade ecosystems. So quantifying relationships between specific human activities and biodiversity through acoustics will enable accurate prediction of ecological changes. This quantification will then be correlated to landscape analysis, remote sensing data, and land use/land cover data to develop an index of disturbance regimes for land use changes and land development. Simultaneously, by making this information available to the public in real time through the clickable ecosystem concept, the research team hopes to bring a general understanding of ecological systems, and help in policy decisions, and public education, thereby helping to develop a society that is better informed and more capable of making intelligent ecological decisions.

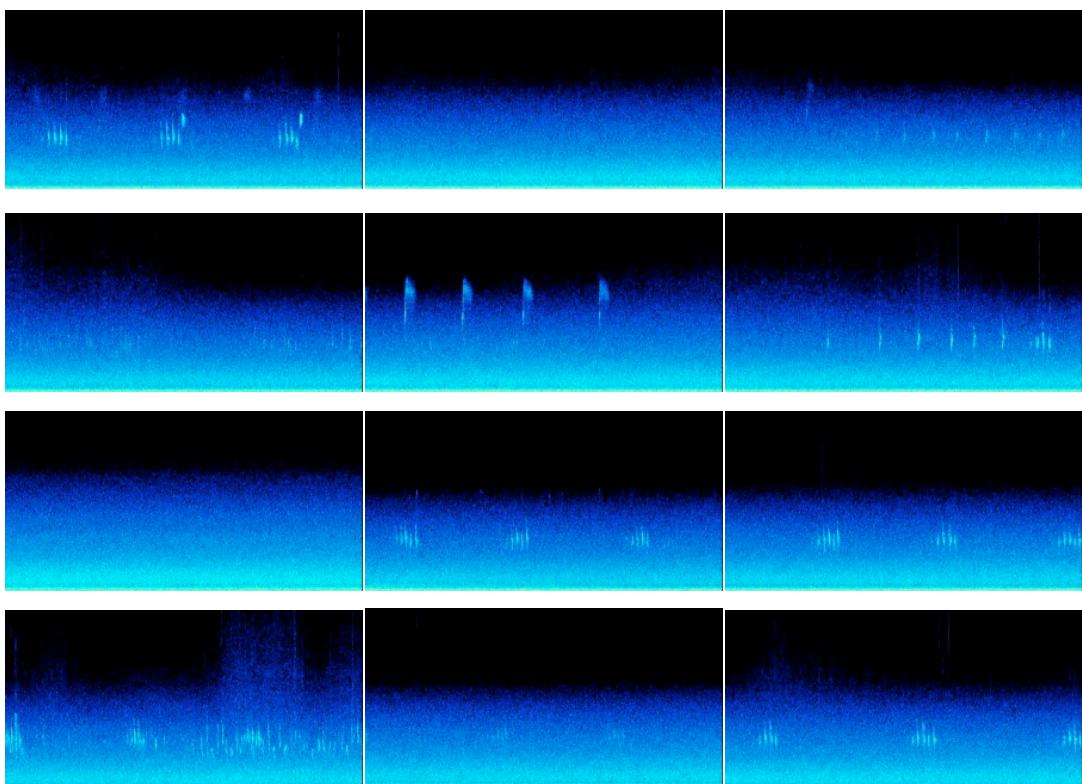
The goal of this research is to gather, interpret, analyze, and ultimately quantify acoustic information from the environment. This quantification will then be correlated to landscape analysis, remote sensing data, and land use/land cover data to develop an index of disturbance regimes for land use changes and land development.

The variety and variability among living organisms and the ecosystems in which they occur. Biodiversity includes the number of different items and their relative frequencies; these items are organized at many levels, ranging from complete ecosystems to the biochemical structures that are the molecular basis of heredity. Thus, biodiversity encompasses expressions of the relative abundances of different ecosystems, species, and genes.





Buckeye Flat Paradise Creek at dawn in the Winter: Sonograms at 5 minute intervals



Buckeye Flat Paradise Creek at noon in the Spring: Sonograms at 5 minute intervals

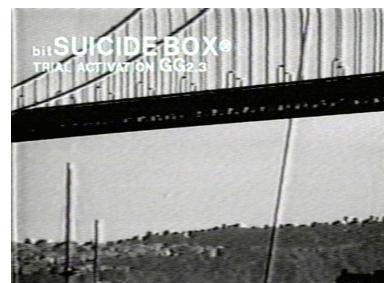
Some simple networks

- This team considers the energy in different frequency bands as an indicator of land use and, ultimately, bio-diversity
- While the signal processing is somewhat sophisticated (relative to an average citizen-sensor), the proposed interpretation is straightforward, direct
- There are already several examples of sensor networks that lead to at least this level of informal interpretation

Media art and the slog

Suicide box is a project by the Bureau of Inverse Technology (Natalie Jeremijenko, UCSD)

It consists of an actuated Web cam that records a few seconds of video when vertical motion is sensed under the Golden Gate Bridge



After some manual filtering for exuberant seagulls, the data are then charted to produce the Bureau's Despondency Index



THE DESPONDENCY INDEX: An economic indicator that indexes the Dow Jones Industrial Average to the moving average of suicides off the Golden Gate Bridge. Grey lines represent

Media art and the slog

Another Jeremijenko project, *Fade to Black*, this consists of a network of web cams aimed at the sky

Over time, these cams slowly go blind as dust in the air coats their lenses

Forms a direct, albeit uncalibrated, immediately readable measure of local air quality



Media art and the slog

On the Farm

Live Stock Footage by Livestock

In the CLUI (Center for Land Use Interpretation)
Los Angeles Exhibit Hall, December - January, 2004

In this exhibit, farm animals show us their point of view through wireless video cameras installed temporarily on their head and necks by virtuoso animal and plant videographer Sam Easterson. Easterson's technology enables a cow, a pig, a goat, a chicken, a sheep, and a horse to guide us around their world; what they look at, what catches their attention, how they move through space, and how they relate to one another, on the farm.

Sam Easterson's enterprise, called Animal, Vegetable, Video endeavors to create the world's largest library of video footage that has been captured from the perspective of animals, plants and the environments they inhabit. The company creates its video footage by outfitting wild animal and plants with 'helmet-mounted' video cameras. It also installs micro video cameras deep inside animal and plant habitats. All video footage that Animal, Vegetable, Video collects becomes part of its extensive video library.



Media art and the slog

I know, this seems very much off topic now, but Easterson provides a simple, and familiar, motivation for this work

By allowing the animals and plants to be the documentarians we are shown their battle with landscapes, their daily interactions with other species, as well as their intimate gestures and sounds. "Take the armadillo. You can listen to its breathing patterns. You can watch closely the rotation of its ears as it encounters new things."



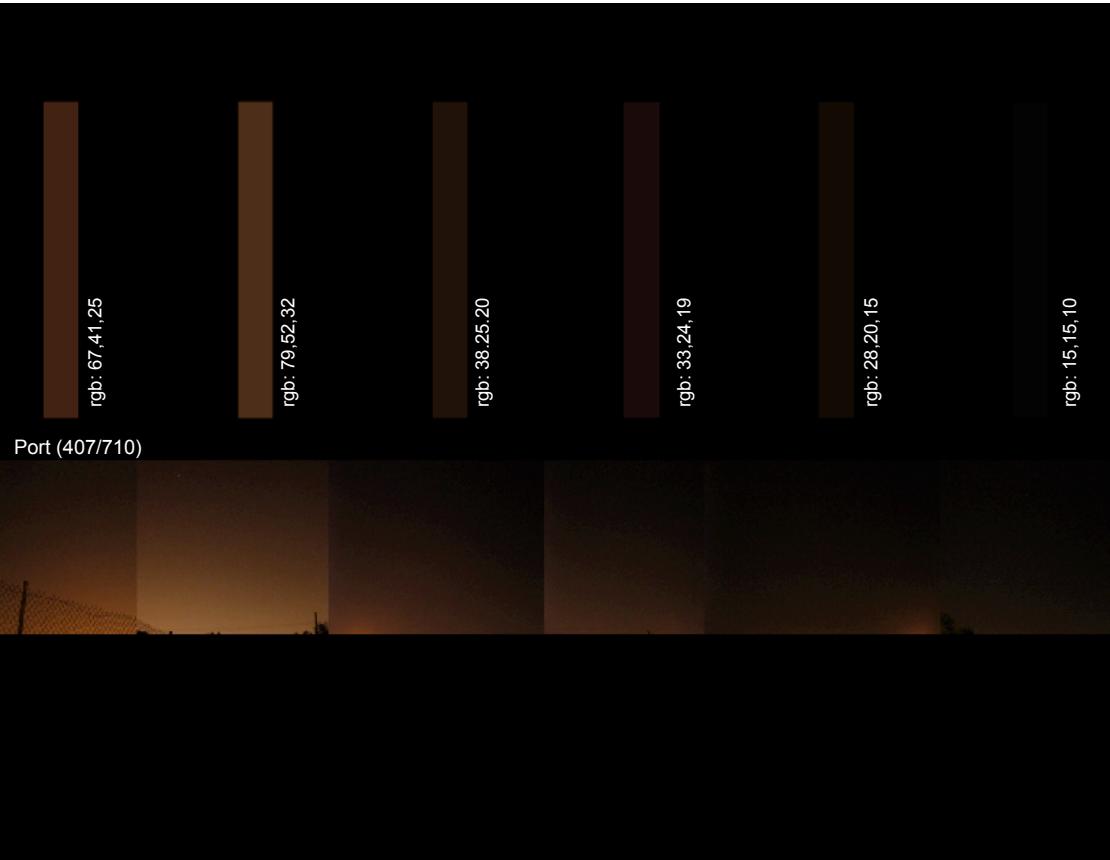
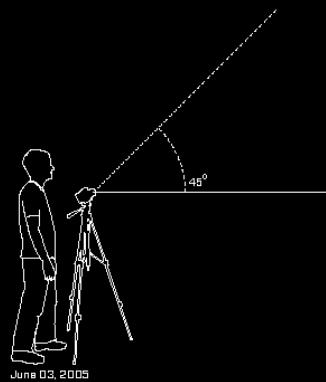
Shades of Black

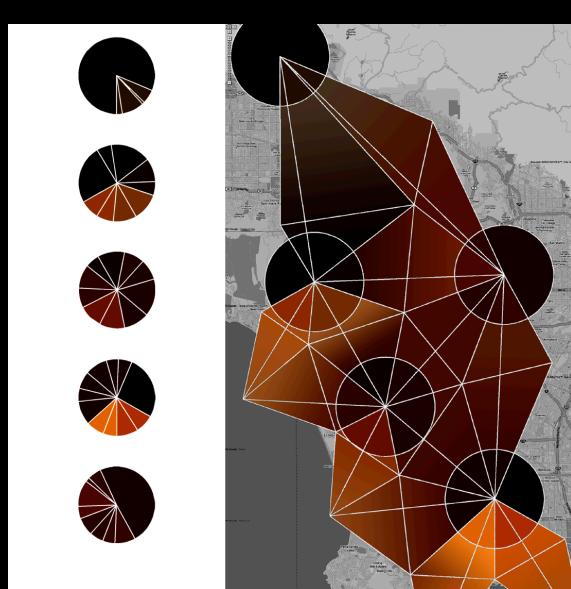
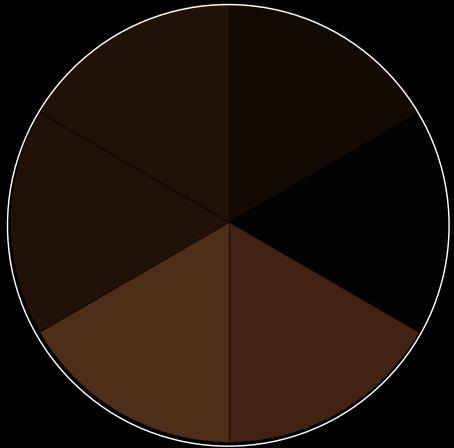
Nuri Miller and Liron Elkan

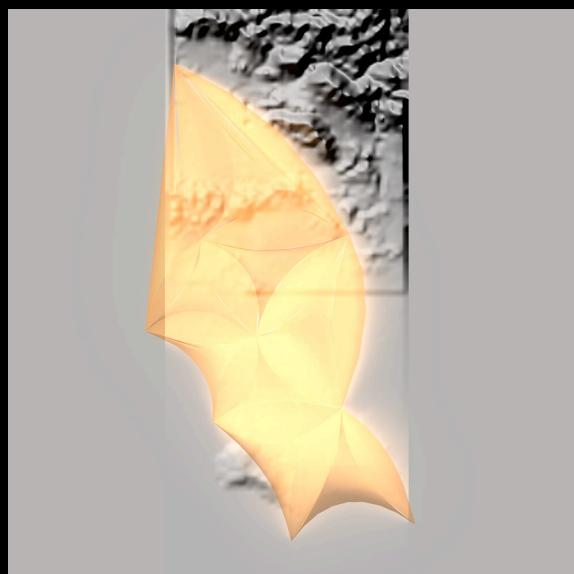
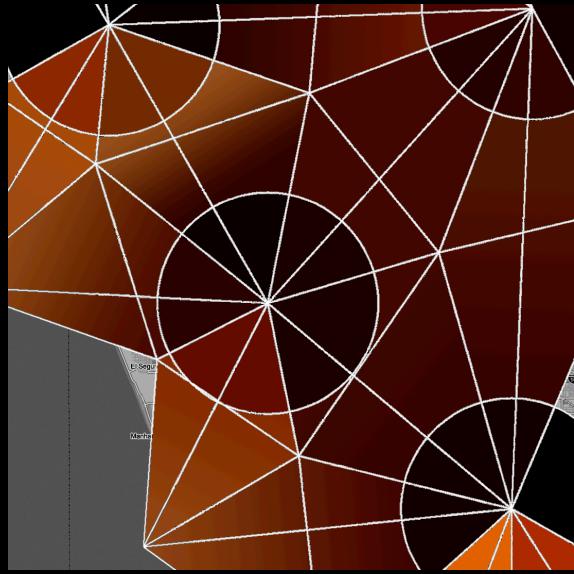
(DESMA 259, Spring 2005)

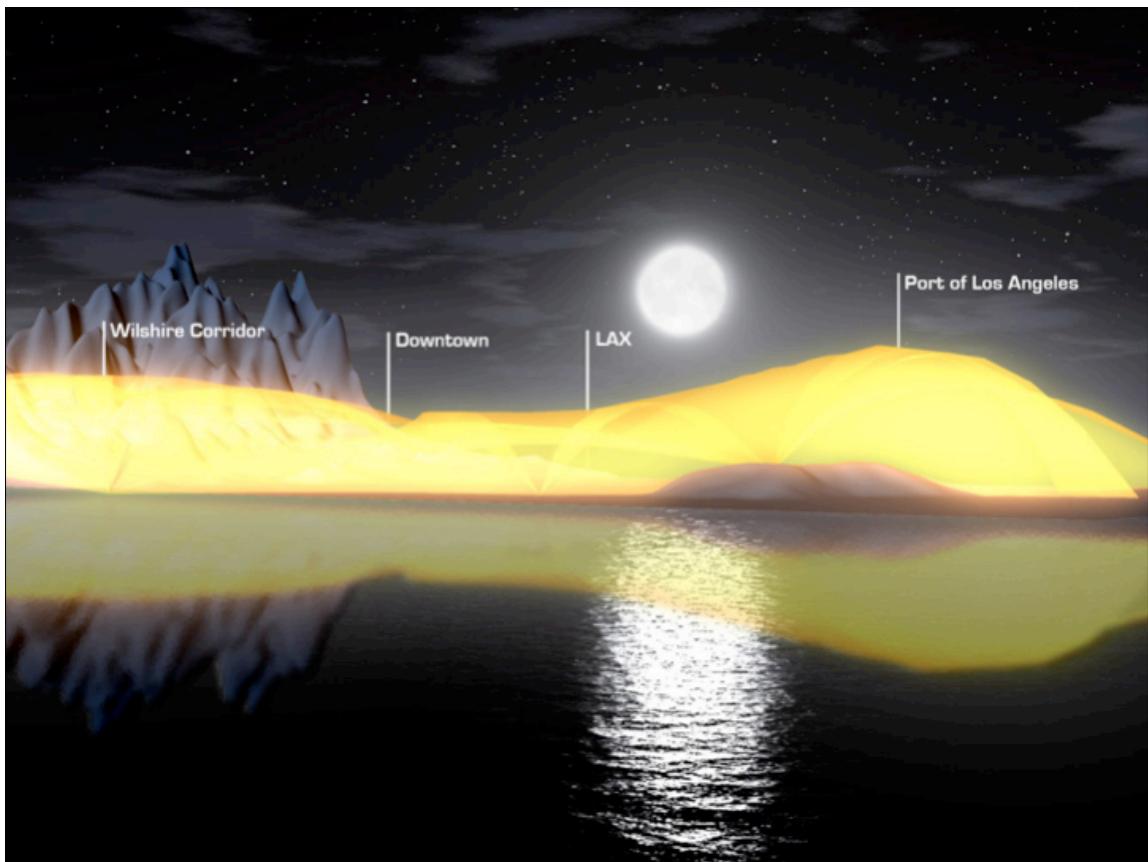
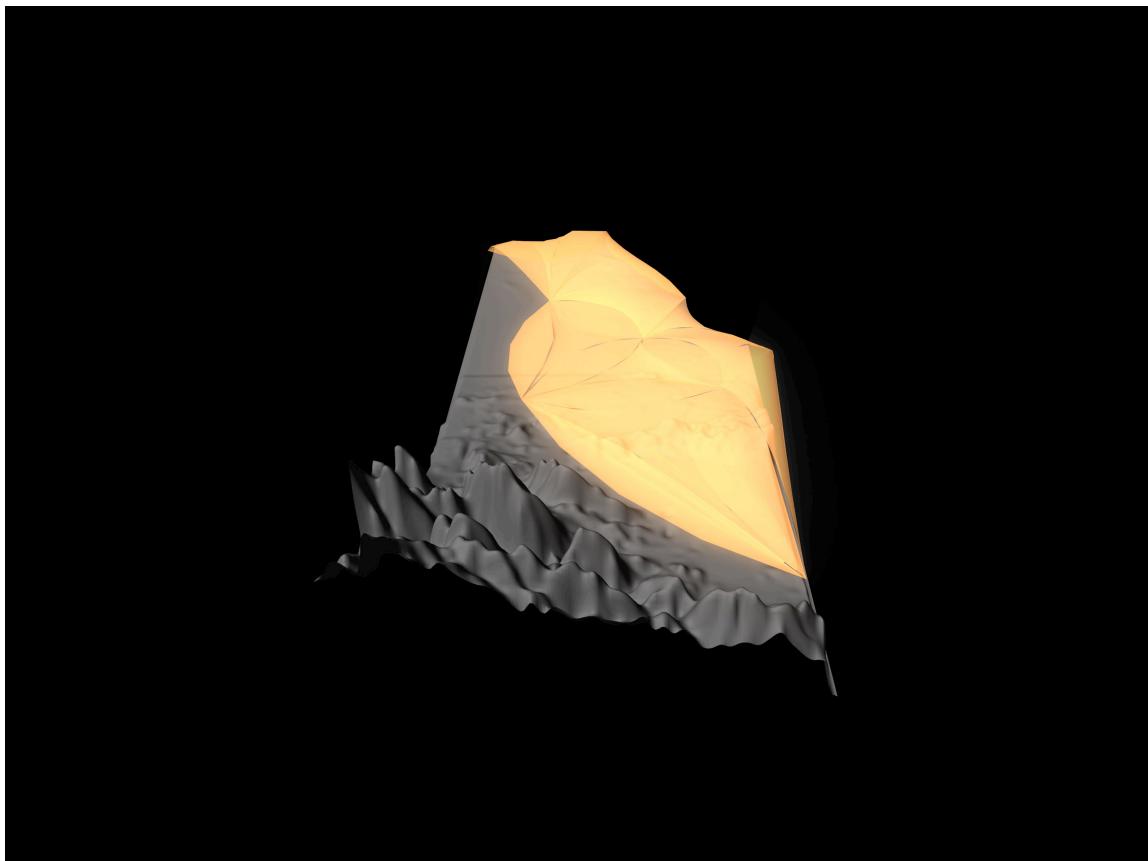
Shades of Black

- Goal is to









Slogging

- Even outside of the arts, there are plenty of examples of people telling their story through data
- One wonders who the audience might be, but keep in mind the unintended and often surprising consequences of data collection...

Apeldoorn, The Netherlands. The house is 17.5 C inside.

ICEPICK
Someone is watching us

Last 5 events at the Icepick house
00:01:02 Sparkey ate
21:21:09 Sparkey ate
20:28:33 Toiletflesh
19:25:15 Fridge opened
19:23:03 Sparkey ate

[Home](#) [Doorbell](#) [Fridge](#) [Toilet](#) [Trashbin](#) [Mailbox](#) [Message Center](#) [Webcams](#)
[Garage](#) [Cattracker](#) [Temperatures](#) [Music played](#) [Funny facts](#) [HIS](#) [LVI](#)

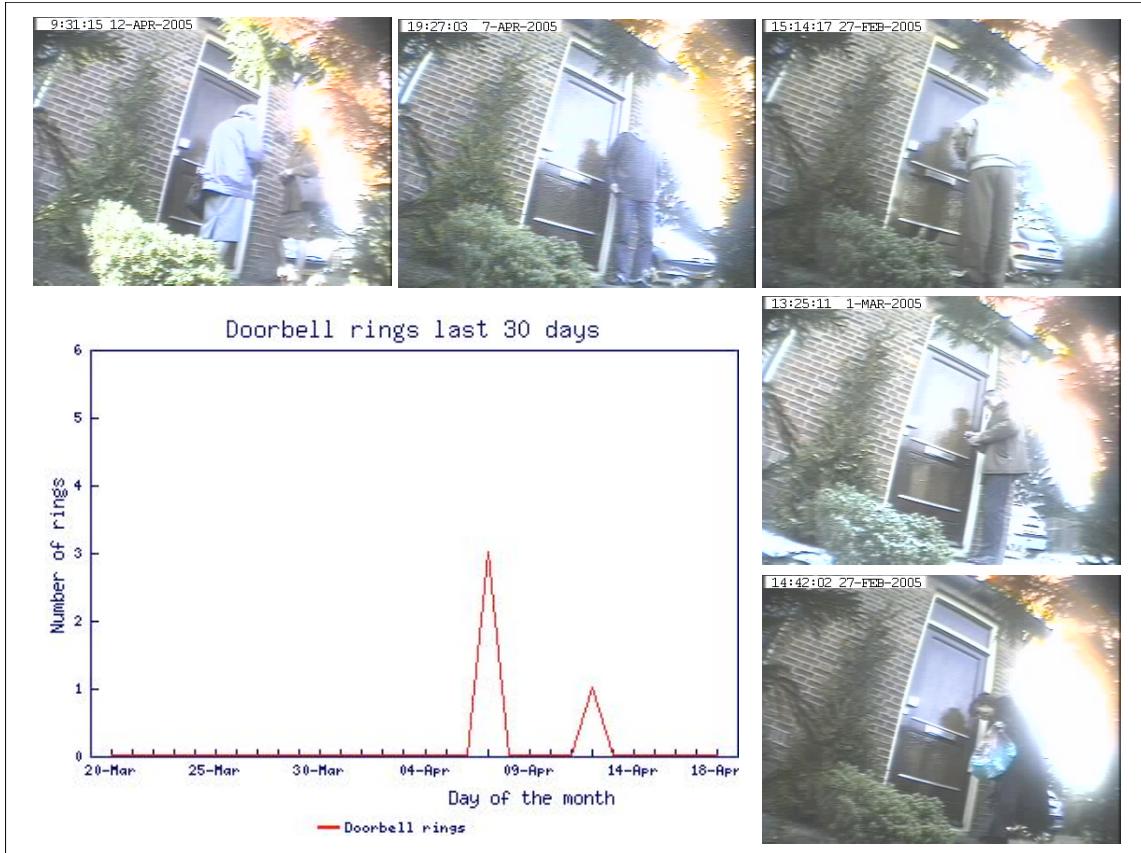
Doorbell

Date	Time	Duration
12-Apr-2005	10:31:14	0.38
07-Apr-2005	20:28:02	1.48
07-Apr-2005	20:27:38	0.94
07-Apr-2005	20:27:07	0.36
13-Mar-2005	15:00:32	0.28
05-Mar-2005	16:59:59	1.17
01-Mar-2005	19:19:28	0.72
01-Mar-2005	13:25:38	0.91

Everytime the doorbell is rang the computer will take a picture of the person ringing the doorbell.
Since 20-Jun-1998 the doorbell has been rang 1194 times. An average ring lasted for 63.88 seconds.
Check out the [Doorbell-Mailinglist!](#)

Last 8 pictures





Support for sloggers

- At the moment, it appears that most deployments of sensor networks are designed with the idea that we share data
- This makes it plausible that an infrastructure around data sharing might emerge, the Web of sensor networks I alluded to
- Current interfaces to sensor-network data are very, well, close to the SQL; the interface inspired by the database

CENS CMS GUI

[Start](#) [Time Interval](#) [Sites](#) [Sensors](#) [Interval / Data Agg.](#) [Graphing parameters](#)

CENS in James Reserve

CENS has a number of collaborative projects deployed in James Reserve

From ENS to NIMS, a steady stream of data is produced by the flora and fauna that inhabit this space

Various experiments are also conducted by biologists and others

Choose region:

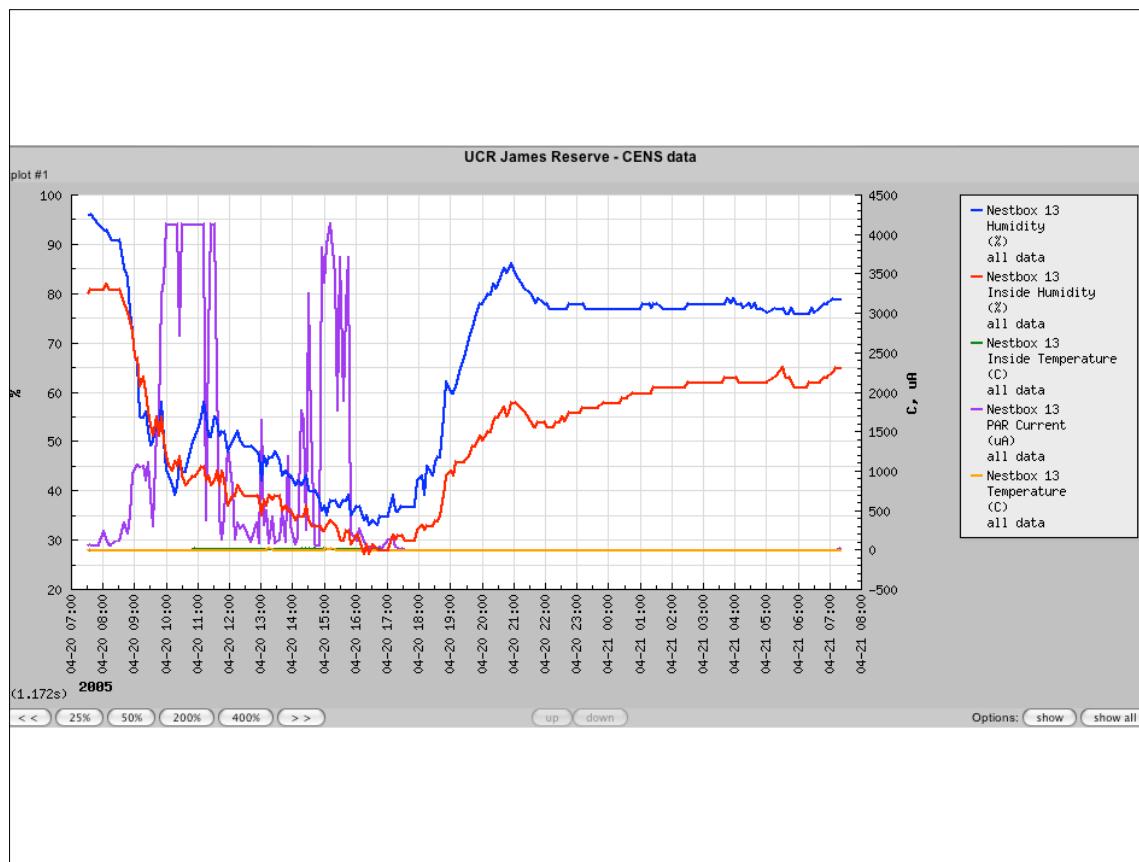
Choose plotting mode:
 [Habitat sensing](#)
 [System diagnostics \(offline and systems sensors\)](#)

Specify motes or sensors first?

Use this option to first select the [sites](#) of interest, then select from [measurements](#) at those locations

Use this option to first select the [measurements](#) of interest, then select from a list of [sites](#) with those measurements

Development tools:
URL length is = 24
 - Summarize user choices passed to next page
 - Debug \$_GET vars passed to current page



Nestbox55 Thu Apr 21 07:24:48 2005



Nestbox21 Thu Apr 21 07:24:22 2005

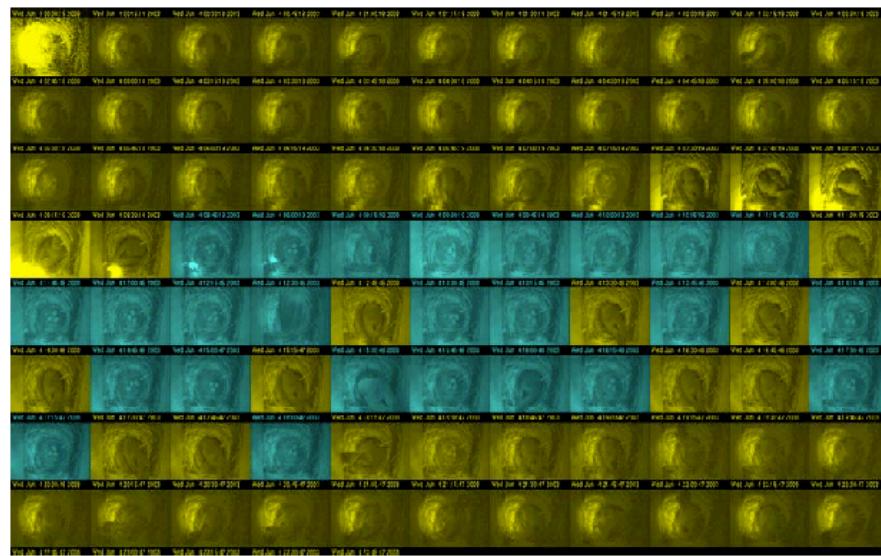


Support for the slog

- But is a database really the right model? Certainly data scientists can help on a number of levels

Images from a nestbox is used to characterize the lifecycle of its inhabitants

We really want to know when a nest is formed, when eggs appear, when chicks leave the nest



See www.cens.ucla.edu or www.jamesreserve.edu for details

Support for the slog

- Once filters are designed to identify higher-level events, how should we “publish” them?
- Maybe we can again take guidance from the blogging and vlogging community
- Would some variant of RSS be appropriate?

The screenshot shows a web-based news aggregator interface. At the top, there are various navigation icons: a blue arrow pointing down, a document icon, a globe icon, a magnifying glass icon, a 'Show Info' button, a 'Subscribe' button, an 'Unsubscribe' button, and a 'Show Sites Drawer' button. Below this, a message says '5 subscriptions, 83 headlines unread' and 'Next refresh: none scheduled'.

The left sidebar lists 'Subscriptions' with five items: BBC News (26), Wired News (7), unmediated (29) (which is selected), CyberJ...net (15), and NYT > ...Page (6). The main content area displays a list of headlines under the heading 'unmediated headlines'. The list includes:

- PaidContent.org: Sony's Real Digital Movie S... 19 Apr 2005
- BitTorrent Metafile 19 Apr 2005
- Making video easier to search and find 19 Apr 2005
- Why Does Anybody Believe Viral? 19 Apr 2005
- Freetag – an Open Source Tagging / Folkso... 19 Apr 2005
- MetaBrainz Launched 19 Apr 2005
- Media Futures 19 Apr 2005
- ... 1,098,000,000 Student Posts a Year 19 Apr 2005
- ... Fans can 'text' outcome of TV storyline 19 Apr 2005
- ... The future of games will make themselves... 19 Apr 2005
- ... Voicevertising 19 Apr 2005
- ... More Bad Behavior by 'Journalists' 19 Apr 2005

Below this list, a specific headline is expanded: "1,098,000,000 Student Posts a Year". The text of this article discusses the volume of student posts on blogs, mentioning Technorati's tracking of 8,950,672 weblogs and the quality of the content.

At the bottom of the page, the URL http://www.unmediated.org/archives/2005/04/1098000000_stud.php is visible.



Support for sloggers

- Perhaps we can consider specialized aggregators that serve the function of the backyard bird watchers or the amateur seismologists and identify events
- Even short of the (possibly odd) notion of a slog, I could imagine our James Reserve collaborators wanting a kind of system that would tell them “what’s new?”
- Registering to a data feed might not mean literally receiving chunks of video of nestboxes, but instead a report when something happens, what’s changed, what’s new
- Who should do this processing? Perhaps some protocol between nntp and rss? Would data be cached at points around the Web? Or...

Or, we feed it all to google...

April 04, 2005

Google To Host Home-Video Uploads

Yet-unnamed service that will allow users to upload video to Google's site to debut later this week, according to company founders.

By Paul Kapustka

[Advanced IP Pipeline](#)

SAN FRANCISCO -- Move over blogging -- here comes Internet-based home video, to a Google server near you.

While there's no formal announcement yet, Google co-founder Larry Page said Monday that the well-known search engine concern would soon let the general public upload self-produced videos to Google's servers, partly in an effort to learn more about how to more efficiently search and display information about video-based data.

"It's an experiment we want to run," said Page of the video-uploading service, which he said the company will formally announce "in the next few days." Page made the non-announcement announcement during Monday's opening panel discussion at the National Cable & Telecommunications Show here, upstaging his luminary fellow panelists John Chambers of Cisco, Brian Roberts of Comcast, Jon Miller of AOL and Jeffrey Katzenberg of Dreamworks.

Support for sloggers

- And speaking of google, what would a search engine look like in this context?
- Find for me all of the finches singing in North America right now (I hope finches actually sing!)
- If such events require my own kind of filter, who does the processing? How do I even learn the characteristics of such a filter in the first place? Do we need a flikr.com here or can it be done automatically?

And finally a philosophical question

- It might warm your heart to know that a well-respected new media theorist, Lev Manovich (UCSD) believes that a work of media art “can be defined as one or more interfaces to a multimedia database.”
- In his book “The Language of New Media”, Manovich considers the impact that new technologies (first photography and film and then telecommunication) has on art-making and on culture in general

And finally a philosophical question

Manovich studies the Big and Small Optics of Paul Virilio

“Small Optics” refers to usual perspective of the human visual system

“Big Optics” deals with real-time information transmission, “the active optics of time passing at the speed of light”

Manovich writes:

Virilio asks us to notice “the progressive derealization of the terrestrial horizon, ... resulting in an impending primacy of real time perspective over real space.” He mourns the destruction of distance, geographic grandeur, the vastness of natural space, the vastness that guaranteed time delay between events and our reactions, giving us time for critical reflection necessary to arrive at a correct decision. The regime of Big Optics inevitably leads to realtime politics, a politics that requires instant reactions to events transmitted with the speed of light, and that, ultimately, can only be efficiently handled by computers responding to each other.

And finally a philosophical question

- We have already seen the move from human-centered actuation to machine-based filtering and response
- Manovich goes further to consider not only how the erosion of distance impacts real-time response, but also the duals of *vision* and *touch*; how distance acts as a barrier to touch
- While Manovich is technically considering haptic devices that can be manipulated over the network (writing in the late 1990s), the notion of touch can be interpreted more broadly as some kind of physical response
- We have seen a kind of “touch” in the way citizens have responded to the local reporting (the images and videos shared via blogs and vlogs) recent tsunami

Again, Manovich writes:

In contrast to older action-enabling representational technologies, real-time image instruments literally allow us to touch objects over distance, thus making possible their easy destruction as well.

And finally a philosophical question

- While “destruction” is very strong, we should consider what it means to link up the physical and the virtual in this way
- When data collection and interpretation is not left to organizations like the EPA or other official bodies, there is bound to be a social shift
- It’s worth considering what kind of action we’ll be called upon to take

Thank you.

URL references

blogs and the tsunami http://www.thiswayplease.com/extra/archive.html/2004_12_01_archive.html
mass observation photographs http://www.ourtreasures.org/page_3_2.asp
mass observation <http://muse.jhu.edu/journals/modernism-modernity/v004/4.3buzard.html>
msu acoustic network <http://envirosonic.cevl.msu.edu/seki/Sound.asp?LocAcr=BF&Season=2&TimeOfDay=1>
technocrati's counts of blogs <http://www.sify.com/alerts/archives/000298.html>
the great backyard bird project <http://www.birdsource.org/gbbc/gbbcFAQs.html>
did you feel it? <http://pasadena.wr.usgs.gov/shake/ca/>
clui on the farm http://www.clui.org/clui_4_1/pro_pro/exhibits/farm.html#
http://blogs.guardian.co.uk/election2005/archives/2005/04/06/introducing_the_blair_watch_project.html
<http://research.microsoft.com/research/hwsystems/#projects>
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