

# Digital Footprints: The Web, Social Media, and your privacy!

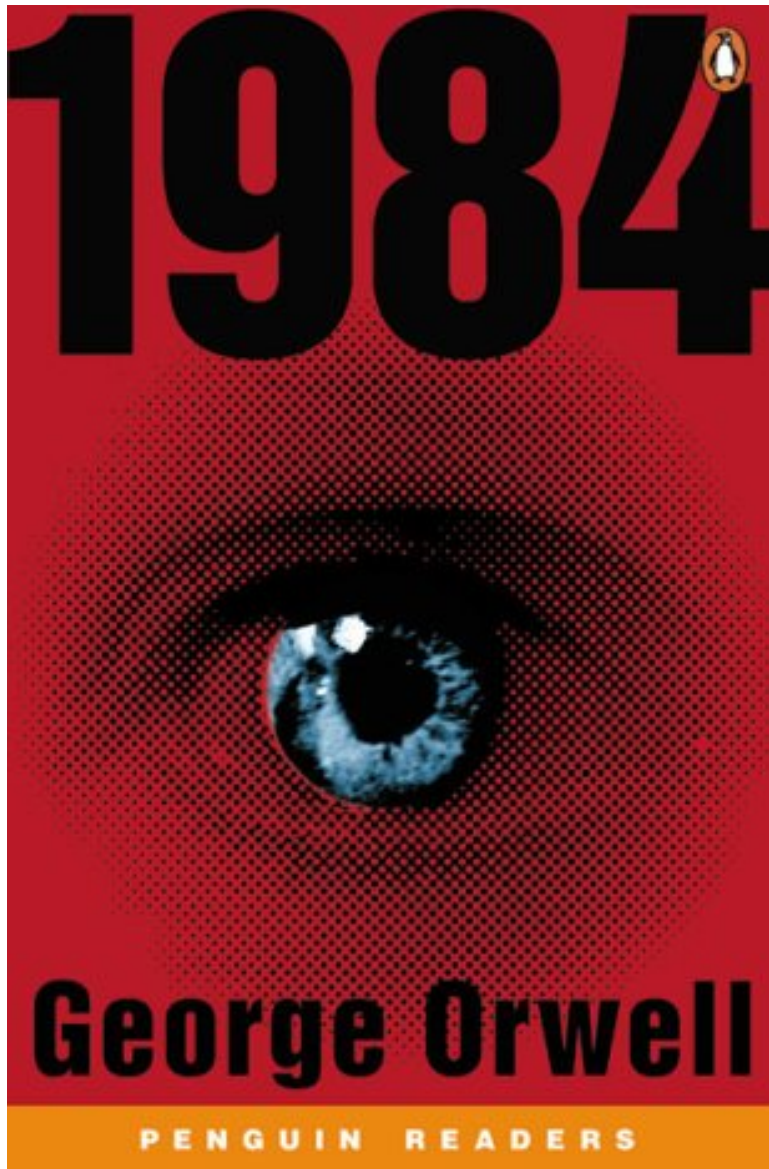
# CS Concepts

- meta data
- RFID
- cookies
- IP address
- re-identification
- bio-metric data

# Social Issues

- cameras everywhere
- electronic monitoring
- social networking
- making money from our data
- vigilante justice
- gps tracking
- rfid in people
- edr in cars (black box)
- connecting the dots
- taking over your phone mic or laptop camera
- surreptitious posting

Blown 2 Bits. Ch. 2. 1984 is here & we like it





What is the scariest thing in the chapter?

# What is the scariest thing in the chapter?

- vigilante justice
- cameras everywhere
- RFID tags in everything
- GPS tracking of cars and people
- event data recorders in cars
- color printer markings
- loss of anonymity
- re-identification (connecting the dots)

How many times have you posted something to a semi-public site that you wished you could retract?

- A. never
- B. one or twice
- C. a lot

# What are you supposed to learn?

- What was the TIA program?
- What kind of data was TIA interested in?
- What do the TIA program and computational advertising companies have in common?
- How do computational advertising companies get paid?
  
- How is privacy defined in the United States?
- How are security cameras being used in law enforcement?
- How is the web being used in the democratic process?

# Big Brother?

- Have you read George Orwell's 1984?
  - How does today's data gathering and constant surveillance differ from Orwell's vision?
- We can each be our own little "Big Brother" watching our kids, friends, neighbors ... (iPhone find friends app)
- Vigilante justice with cell phone cameras and web postings
- Cameras everywhere
- RFID tags in humans?

# Big Brother?

- Event Data Recorders in cars - mandatory starting 2011
  - Supreme court ruling on gps stuck on car without a warrant ([www.gps.gov/news/2012/01/supremecourt/](http://www.gps.gov/news/2012/01/supremecourt/))
- Many color printers encode date/time/serial number on every page printed

How was George Orwell's vision of "Big Brother" surveillance different from the surveillance being done today?

- A. The technology he imagined would be considered "amateurish" today.
- B. Today most people "willingly accept" the surveillance in exchange for efficiency and convenience (among other things).
- C. Both A and B
- D. None of the above. He painted an amazingly accurate picture of our constantly surveilled society, albeit he was off by a few years.



# Connecting the dots

- How does the loss of anonymity in the digital age impact free speech and dissidents/whistle-blowers and the like?
- Re-identification of supposedly de-identified medical records. (ucsc faculty survey)

# Giving up privacy

- Saves time
- Saves money
- For convenience
- Just for fun

*“Information technology did not cause the end of privacy, any more than automotive technology caused teen sex.”*

# Giving up privacy

- Saves time
- Saves money
- For convenience
- Just for fun

# Giving up privacy

- Saves time
- Saves money
- For convenience
- Just for fun

# Giving up privacy

- Saves time
- Saves money
- For convenience
- Just for fun

# Giving up privacy

- Saves time
- Saves money
- For convenience
- Just for fun

# What are you supposed to learn?

- What is a digital footprint?
- What technology advances in the last ten years have made ‘Big Brother’ possible
- Which **organizations** try to protect your privacy.
- Why you should read the “**Terms and Conditions**” for every app you download
  - You never know what they might say. Example: Pulse App asks you to give permission for them to track every number you call
- Why you should **consider what you put onto public sites** like Facebook.
  - Are you sure your privacy settings are as you want?



What are examples of the types of digital monitoring going on today?

# Privacy: A Definition

- **Privacy:** The right of people to choose freely under what circumstances and to what extent they will reveal themselves, their attitude, and their behavior to others.
  - It's a human right – explicit in many countries
  - You do the revealing, no one else
  - You can't live like a hermit; you must reveal
  - With strong privacy protections – the US has almost none – it's OK to reveal, because the receivers of the information must keep it private

Data Aggregators: Computational Advertising is getting to be a big business

Who is making money from your data?

# Who is making money from your data?

- Facebook
- Google
- Amazon
- Netflix
- ??????

# What is YOUR digital footprint?

- Where are you revealing stuff you'd rather not have open to the world?
- Facebook
- Credit card information
- Cookies tracking transaction data
- Amazon purchases
- Embarrassing stuff. Facebook youtube
- Downloads tracking

# What is YOUR digital footprint?

- Where are you revealing stuff you'd rather not have open to the world?
- Location information
- General search and site history
- Tracking cookies in general
- Email
- Every app you download on your phone
- Tumblr



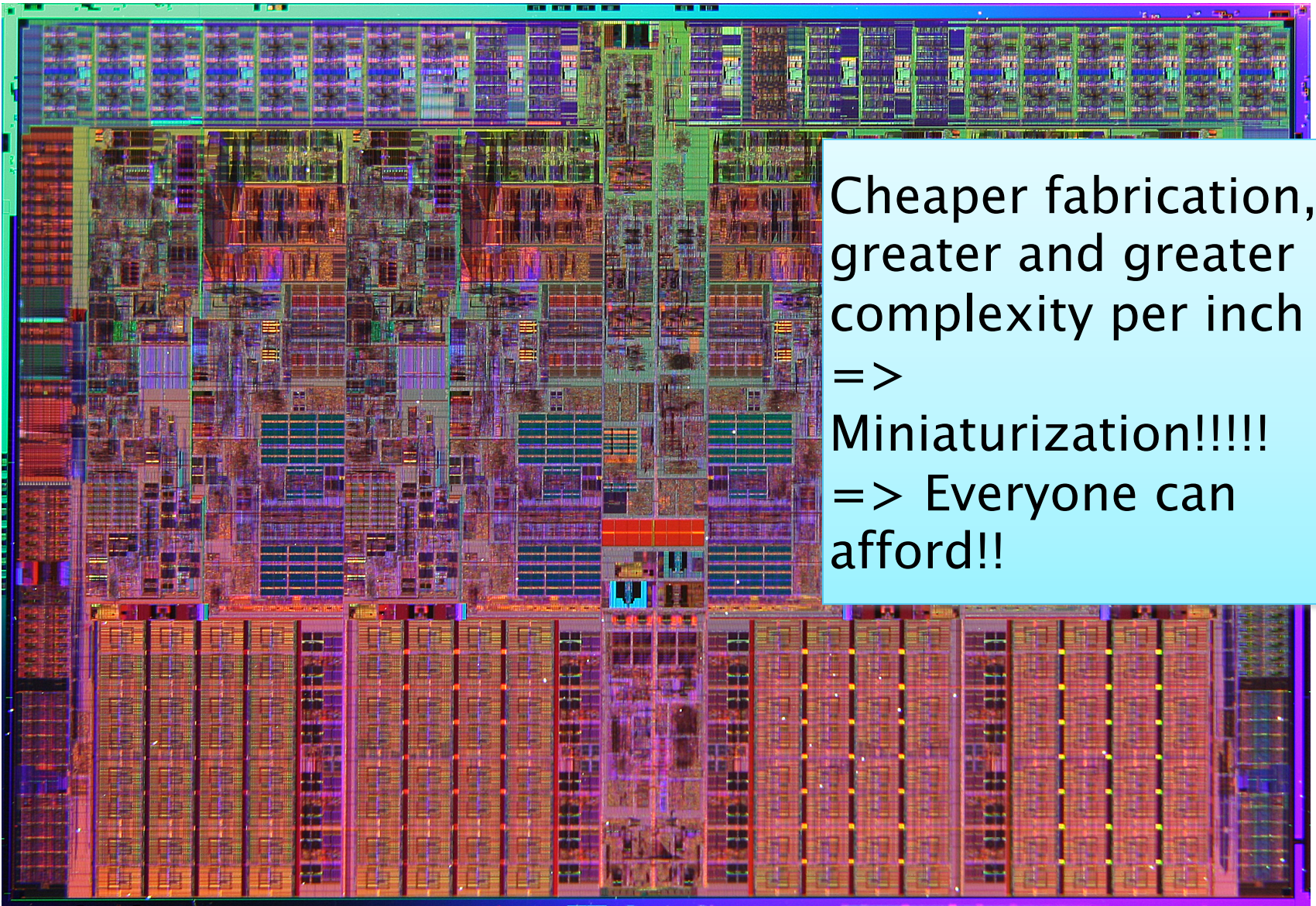
If you complete a survey that does not ask for your name, address, phone number, or other obvious forms of identification, can you safely assume that your answers are truly anonymous?

- A. True
- B. False

.... How did we get here?

What technological innovations have brought us where we are today?

# Integrated Circuits: Millions of logical gates



Cheaper fabrication,  
greater and greater  
complexity per inch  
=>  
Miniaturization!!!!  
=> Everyone can  
afford!!

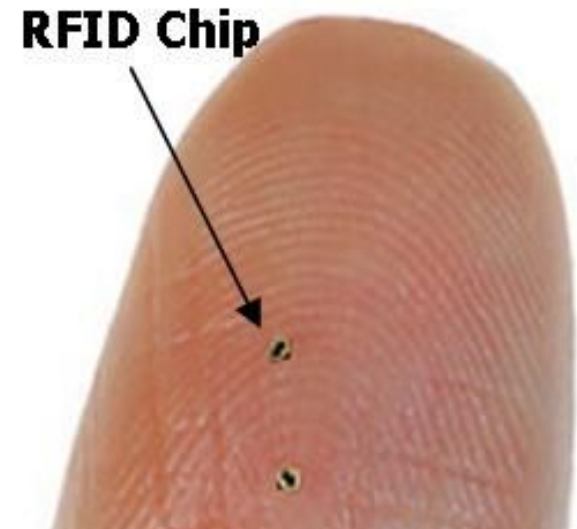
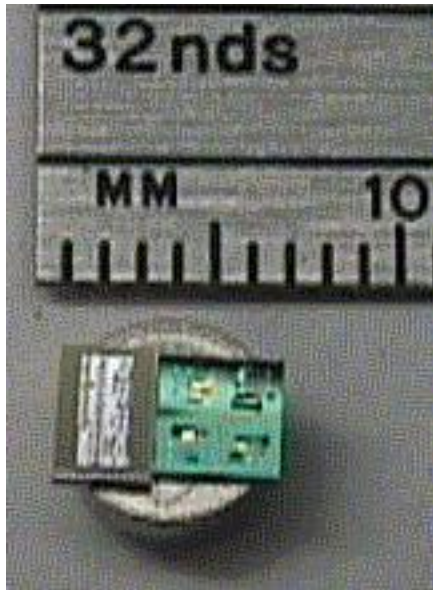
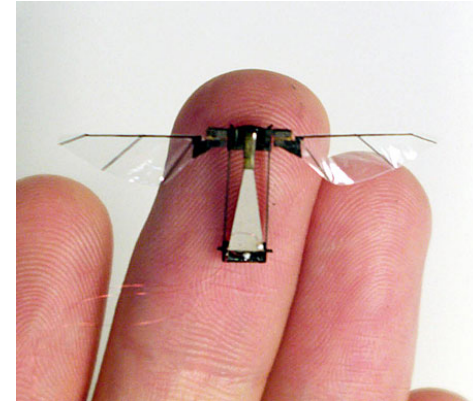


# This made possible the personal computer

- Ken Olsen, Founder of DEC  
“There is no reason for any individual to have a computer in their home [1977]”
- Xerox Star, 1981. First PC. First mouse. Failed
- Apple Macintosh, 1984: first commercially successful personal computer to feature a mouse and a graphical user interface rather than a command-line interface.
- But only YOUR data on YOUR hard drive. Transfer with Floppys. LAN



# Eventually ICs => Miniaturization: Phones, Smartdust



# The Internet

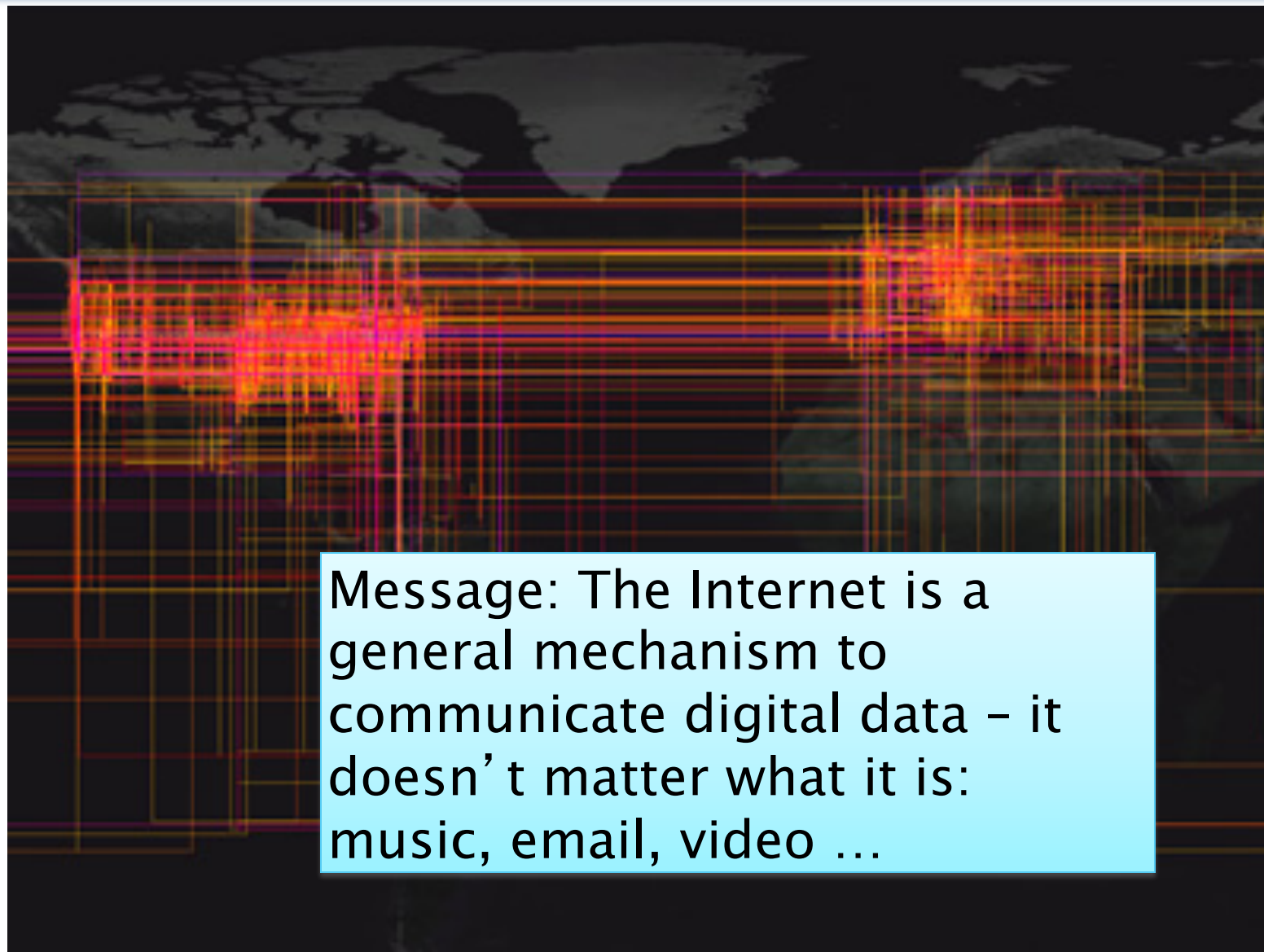
- Invented in 1969 for military purposes, it took almost 20 years to get out of the lab
- Communication by FTP (file transfer protocol).
- Ascii Terminal interface
- E.g. 1983 War Games Film

```
adam@localhost:~  
adam@localhost:~> connect server.gaminglives.com  
Connecting to server.gaminglives.com  
Unable to connect on port 80 [default].  
There is no service running on that port.  
adam@localhost:~> connect server.gaminglives.com  
Bouncing link through [0] hosts...  
Connecting to server.gaminglives.com[69]  
Connected.  
root@server.gaminglives.com:~> dir  
.  
..  
hacker_evolution-collection.exe |111MB  
benbot2000_exploit |42MB
```





# Connectivity to Change the World

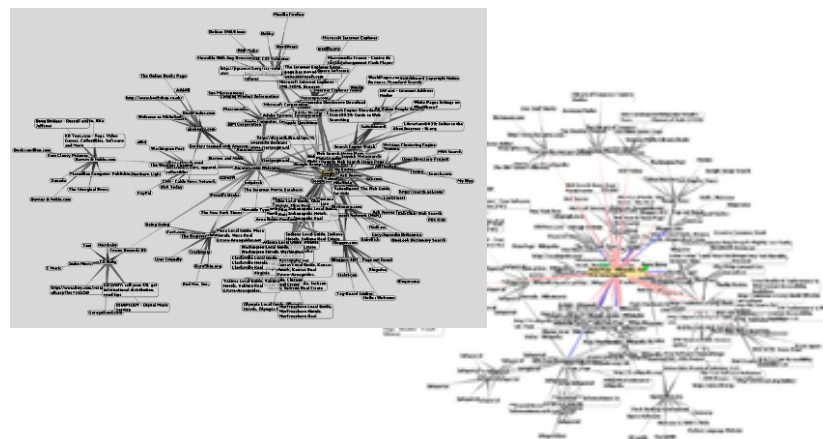


Message: The Internet is a general mechanism to communicate digital data – it doesn't matter what it is: music, email, video ...



# WWW + http: Early 90's changed everything

- WWW: An INTERFACE!!
- All computers “speak” a common language: hyper-text transfer protocol. HTTP
- Content points to other content
  - (Google page rank, later)
  - UTF ensures content of pages in any language can be displayed

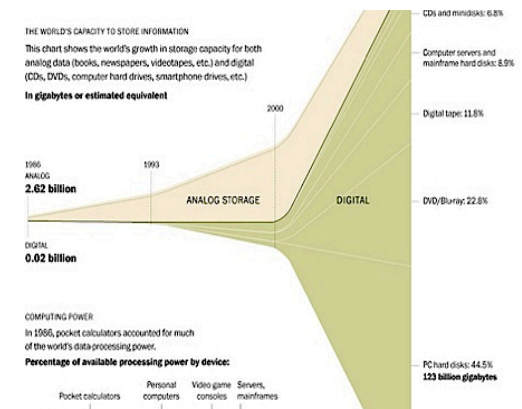


# Everything that humanity knows is now online!!

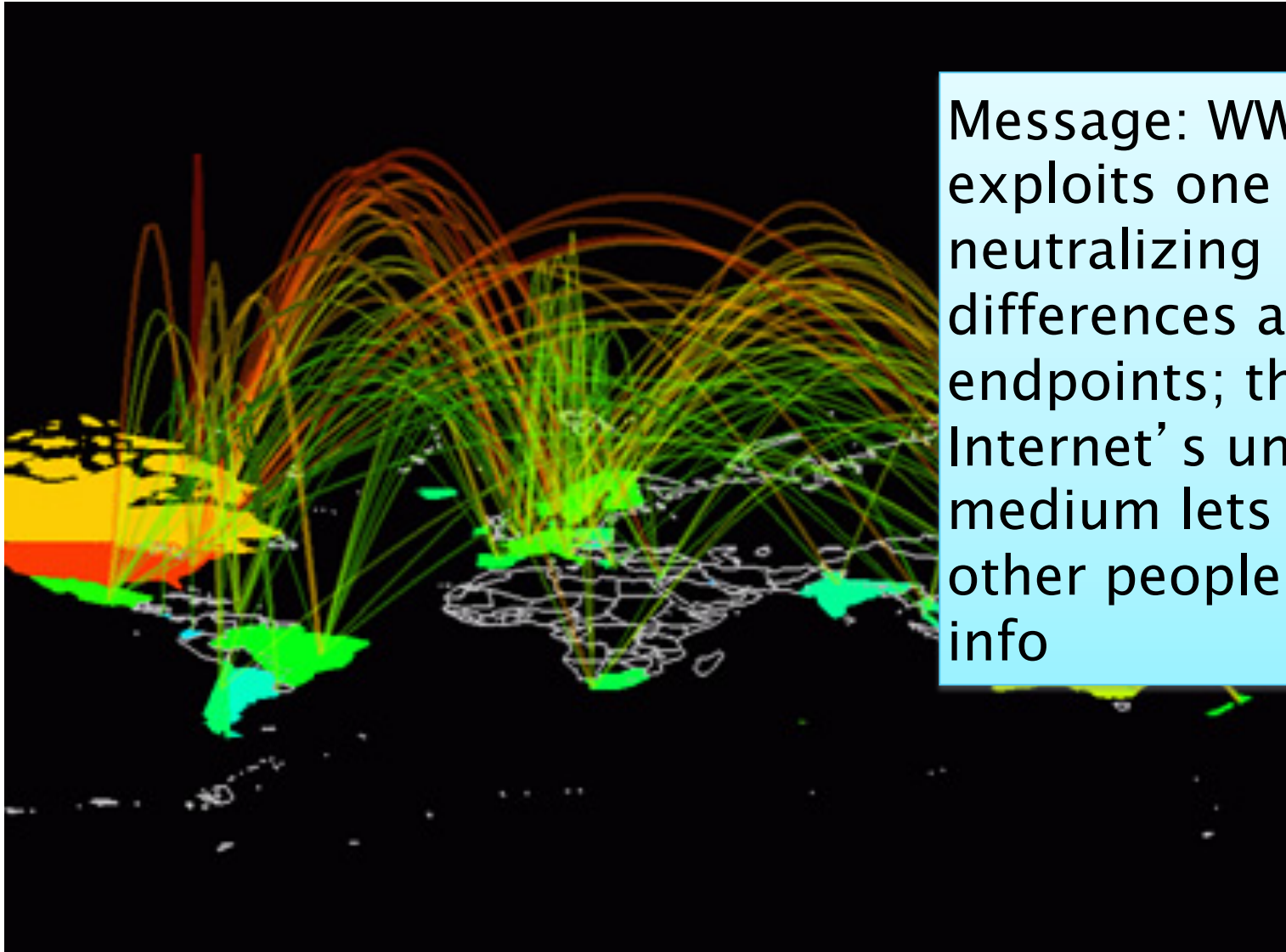
- Newspapers
- Scientific Articles
- Books
- Encyclopedias (Wikipedia)
- Dictionaries and Thesauri (Wordnet, Framenet, Sentiwordnet, Freebase)
- Penn Treebank: a million words of parsed and semantically labelled news, books etc.
- Plus current and historic (10 years) opinions, reactions, emotions (opinion mining)

# Why the WWW is so brilliant

- WWW = The Servers + The Data
- All computers use one standard protocol (http) meaning that every computer in every country where people all speak different languages can communicate
- Publishing and accessing information is completely decentralized –no one limits what you put out or search for
- Critical mass of data =>  
Too much personal Data?



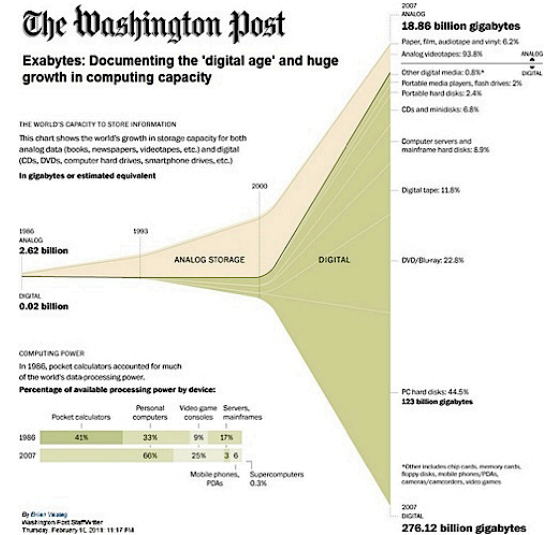
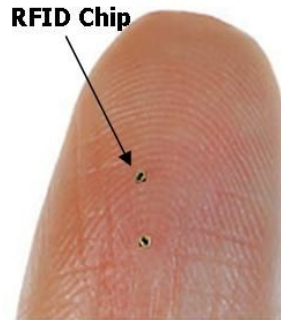
# Seeing Other People's Digital Info



Message: WWW exploits one protocol, neutralizing differences at endpoints; the Internet's universal medium lets us look at other people's digital info

# So how did we get here?

- ICs =>
  - Personal
  - Miniaturization
- Internet
- WWW
- Digitization of Content
- Mobile
- The same technology that is **incredibly useful and often fun!** (so we like it), also affords 'Big Brother'



It's easier than you think for your privacy to be violated without you knowing it.

# Cell phone mics can be remotely activated

- [Cell Phone Tap story](#) on you tube

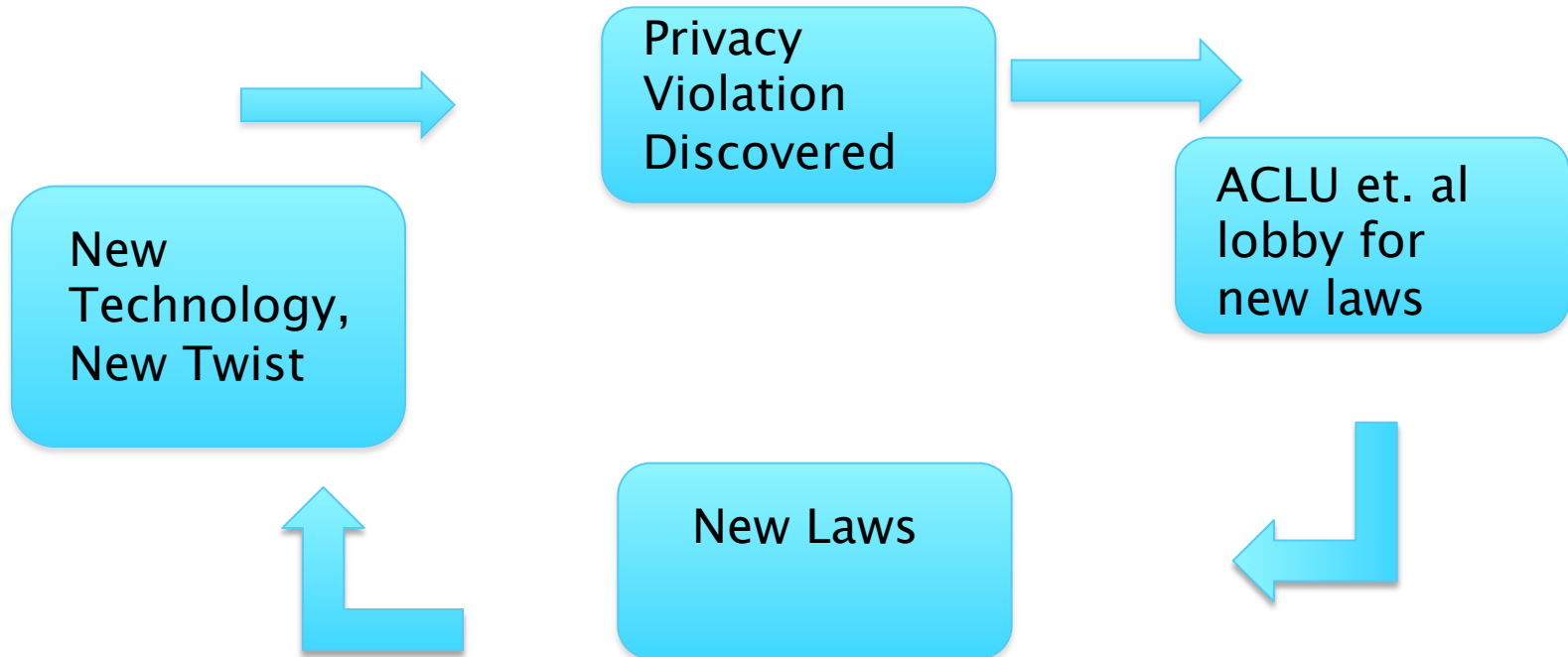


The image is a screenshot of a YouTube video player. At the top, the YouTube logo is on the left, followed by a search bar and navigation links for "Browse", "Movies", and "Upload". Below this is the video title "FBI taps cell phone mic as eavesdropping tool" and the channel name "DefendYourFreedom" with a "Subscribe" button and "189 videos" link. The video player itself shows a man on a cell phone with a blue overlay text that reads "LISTENING IN FOX NEWS FBI CAN USE CELL PHONE MIC TO EAVESDROP FOX PRES MAHMOUD AHMADINEJAD WHO HAS 5". The video progress bar shows 0:39 / 0:49. Below the player are "Like", "Add to", and "Share" buttons, and a view count of "11,757". At the bottom, it says "Uploaded by DefendYourFreedom on Mar 10, 2009" and provides a link to a full article: "http://news.zdnet.com/2100-1035\_22-150467.html". A small bar at the bottom right indicates "19 likes, 2 dislikes".



# Who tries to protect your privacy?

- American Civil Liberties Union
- Electronic Privacy information Center
- Electronic Frontier Foundation
- Center for Democracy and Technology
- Cycle of surprising privacy violation, lobbying for laws, new laws, but new technology or new twist, then cycle...





# Edward Snowden

- Revealed widescale operations of the NSA to collect data on US citizens
- Revealed government collecting metadata from major phone companies
- [PRISM](#), [XKeyscore](#), and [Tempora](#) Internet surveillance programs
- Caused controversy and mixed reviews



# Edward Snowden

- Revealed widescale operations of the NSA to collect data on US citizens
- Revealed government collecting metadata from major phone companies
- [PRISM](#), [XKeyscore](#), and [Tempora](#) Internet surveillance programs
- Caused controversy and mixed reviews



Is he a hero or an enemy?

Are you revealing only what you want to reveal?

# Facebook Privacy: A Timeline

## **Facebook Privacy Policy circa 2005:**

No personal information that you submit to Thefacebook will be available to any user of the Web Site who does not belong to at least one of the groups specified by you in your privacy settings.

## **Facebook Privacy Policy circa 2006:**

We understand you may not want everyone in the world to have the information you share on Facebook; that is why we give you control of your information. Our default privacy settings limit the information displayed in your profile to your school, your specified local area, and other reasonable community limitations that we tell you about.

# Facebook Privacy: A Timeline

## **Facebook Privacy Policy circa 2007:**

Profile information you submit to Facebook will be available to users of Facebook who belong to at least one of the networks you allow to access the information through your privacy settings (e.g., school, geography, friends of friends). Your name, school name, and profile picture thumbnail will be available in search results across the Facebook network unless you alter your privacy settings.

# Facebook Privacy: A Timeline

## Facebook Privacy Policy circa November 2009:

Facebook is designed to make it easy for you to share your information with anyone you want. You decide how much information you feel comfortable sharing on Facebook and you control how it is distributed through your privacy settings. You should review the default privacy settings and change them if necessary to reflect your preferences. You should also consider your settings whenever you share information. ...

Information set to “everyone” is publicly available information, may be accessed by everyone on the Internet (including people not logged into Facebook), is subject to indexing by third party search engines, may be associated with you outside of Facebook (such as when you visit other sites on the internet), and may be imported and exported by us and others without privacy limitations. The default privacy setting for certain types of information you post on Facebook is set to “everyone.” You can review and change the default settings in your privacy settings.

# Facebook Privacy: A Timeline

## **Facebook Privacy Policy circa December 2009:**

Certain categories of information such as your name, profile photo, list of friends and pages you are a fan of, gender, geographic region, and networks you belong to are considered publicly available to everyone, including Facebook-enhanced applications, and therefore do not have privacy settings. You can, however, limit the ability of others to find this information through search using your search privacy settings.

# Facebook Privacy: A Timeline

## **Facebook Privacy Policy, circa [April 2010](#):**

When you connect with an application or website it will have access to General Information about you. The term General Information includes your and your friends' names, profile pictures, gender, user IDs, connections, and any content shared using the Everyone privacy setting. ... The default privacy setting for certain types of information you post on Facebook is set to "everyone." ... Because it takes two to connect, your privacy settings only control who can see the connection on your profile page. If you are uncomfortable with the connection being publicly available, you should consider removing (or not making) the connection.



# When was this written?

“Instantaneous photographs and newspaper enterprise have invaded the sacred precincts of private and domestic life; and numerous ... devices threaten to make good the prediction that “what is whispered in the closet shall be proclaimed from the house-tops.”

# Surreptitious Recordings

- Can public distribution of surreptitiously obtained information ever be justified?
  - Surreptitious: obtained, done, made, by stealth;
    - secret or unauthorized
  - Information taken without knowledge of subject or creator
  - Information is video recordings, audio, documents, pictures

# Contrast Two Videos: Surreptitious, Not

- Star Wars Kid
  - A/K/A Ghyslain Raza
  - Just messing around in drama studio at school
  - Other kids found and uploaded
  - <http://www.youtube.com/watch?v=HPPj6viIBmU>
- Numa Numa Guy
  - A/K/A Gary Brolsma
  - <http://www.youtube.com/watch?v=W9mgUFhEARg&feature=fvwr>  
[el](#)



# More Recent Cases

- Tyler Clementi, a Rutgers student whose roommate recorded him during a sexual encounter and uploaded it to the Internet
  - Result: Clementi jumped off a bridge
- Two days later a college student's phone accidentally dialed his buddies while he was engaged in sex; they uploaded it to youtube
  - Result: Embarrassment

Associated Press found at least 12 cases in the U.S. since 2003 in which children and young adults between 11 and 18 killed themselves after falling victim to some form of "cyberbullying" - teasing, harassing or intimidating with pictures or words distributed online or via text message

# Recent Incidents: Cell phone videos



## Occupy Wall Street pepper spray

Uploaded by USLAWdotcom on Sep 24, 2011  
The Law of Occupation <http://www.uslaw.com>  
Twitter <http://twitter.com/uslaw>  
The original slow motion video

**NEW YORK (AP)** — An internal New York Police Department review has found an official violated department guidelines when he used pepper spray on Occupy Wall Street protesters last month, a person with knowledge of the investigation said Tuesday.

Deputy Inspector Anthony Bologna faces discipline of a loss of 10 vacation days after the Sept. 24 incident near Union Square, shortly after the now-global protests began in a tiny private plaza in lower Manhattan, the person said. The person had direct knowledge of the review but was not authorized to speak publicly and spoke to The Associated Press on condition of anonymity.

# His personal details leaked by Anonymous

- [Huffington Post Tony Bologna followup](#)
- As an act of retribution, the hackers group **Anonymous** identified Bologna and leaked his personal information including his address, phone number, and names of known family members.

## Anthony Bologna, Pepper Spray NYPD Officer, Transferred To Work In Staten Island



First Posted: 10/26/11 05:37 PM ET | Updated: 10/26/11 05:37 PM ET

React > [Amazing](#) [Inspiring](#) [Funny](#) [Scary](#) [Hot](#) [Crazy](#) [Important](#) [Weird](#)

Follow > [Ny News](#), [Nypd](#), [Video](#), [Pepper Spray](#), [Anthony Bologna](#), [Nypd Pepper Spray](#), [Nypd Scandals](#), [Occupy Wall Street](#), [Ows](#), [New York News](#)

SHARE THIS STORY

Like 280 people like this. Be the first of your friends.

122 share 58 tweet 2 email 1 +1

Get New York Alerts

[Sign Up](#)

Submit this story

The NYPD officer caught using pepper-spray on two female Occupy Wall Street protestors in September has been transferred to work in Staten Island.

While that might sound like enough torture for some, Bologna is apparently from Staten Island, so the transfer translates into a shorter commute for the 29-year NYPD veteran.

So is it punishment or reward?

Debatable, but officially the reassignment is indeed a relegation from his previous, high ranking title as Deputy Inspector. Bologna will begin reporting to Staten Island's borough command as a special projects coordinator.

Earlier this month, Bologna was disciplined with a loss of 10 vacation days, or the equivalent in pay



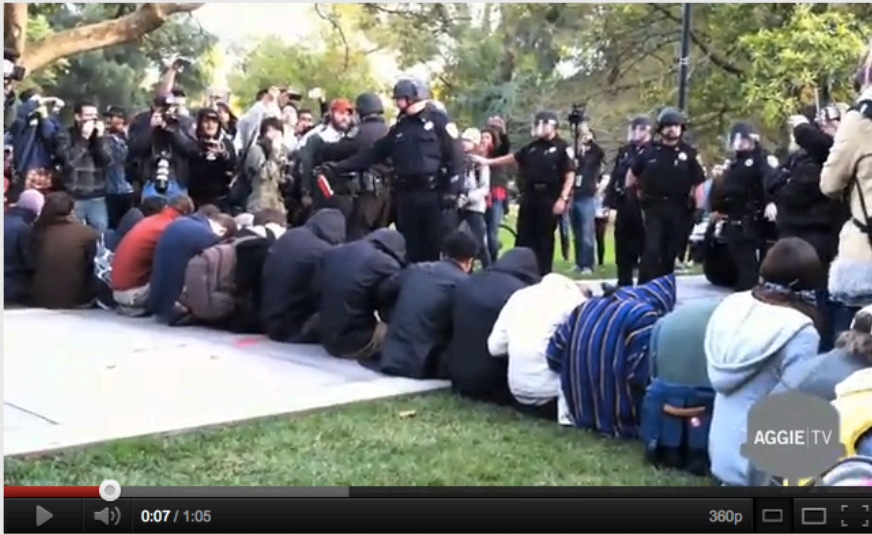
# Recent Incidents: Cell phone videos

## Davis Pepper Spray

Changes the process of democracy

Right to free speech, to protest

Can't go undetected



The screenshot shows a YouTube video player. The video title is "UC Davis Protestors Pepper Sprayed". The channel is "asucd" with 195 videos. The video shows a large group of protesters sitting on the ground, surrounded by police officers in riot gear. One officer is spraying a protester. The video has 1,582,063 views, 3,811 likes, and 565 dislikes. It was uploaded on Nov 18, 2011. The video description reads: "Police pepper spray students who refused to move out of the way." The video player shows a progress bar at 0:07 / 1:05 and a resolution of 360p.

YouTube

UC Davis Protestors Pepper Sprayed

asucd + Subscribe 195 videos

AGGIE TV

0:07 / 1:05 360p

Like + Add to Share

1,582,063

3,811 likes, 565 dislikes

As Seen On: The Huffington Post F...

Uploaded by asucd on Nov 18, 2011  
Friday Nov. 18th at 4:54 PM

Police pepper spray students who refused to move out of the way.

# Posting Audio/Video Online: Good or Evil?

[Alexandra Wallace original](#). 2.52 minutes

The image shows a screenshot of a YouTube video player. At the top left is the YouTube logo. To its right is a search bar with a magnifying glass icon. Further right are links for 'Browse', 'Movies', and 'Upload'. Below this is the video title: 'Asians in the Library: UCLA Rant (Original Uncut Video) and Apology'. Under the title is the channel name 'SirBigDICKNigga', a '+ Subscribe' button, and a '4 videos' dropdown menu. The video player itself shows a woman with long blonde hair wearing a pink top, speaking. The video progress bar at the bottom indicates the video is at 0:09 of a 2:52 duration. To the right of the progress bar are icons for 'CC', '360p', and window controls. Below the video player are buttons for 'Like', 'Add to', 'Share', and a notification bell. On the far right, the view count '754,967' is displayed next to a small thumbnail icon.



# Jimmy song: Raised Money for Charity?

- Jimmy Response with humor!!

**Ching Chong! Asians in the Library Song (Response to UCLA's**

Jimmy + Subscribe 58 videos

Song and t-shirts available now!!  
Link in the description!

watch new videos EVERY Friday!  
Subscribe!! guitars, drums,  
and rocking harmonies! we  
raised \$6,500 for charity!!!



0:22 / 4:16

4,273,934

Like + Add to Share Print

Uploaded by Jimmy on Mar 15, 2011

Buy the t-shirt! <http://www.districtlines.com/jimmy> Buy my songs!  
<http://itun.es/i6H6hR>  
<http://bit.ly/BANDCAMPChingChong>  
100% goes to charity!!

83,129 likes, 676 dislikes

As Seen On:  
[Know Your Meme Entry...](#)

# Death Threats, Personal Info, Leave UCLA

## Death Threats Persuade Alexandra Wallace To Leave UCLA

257 Comments [Share](#) [Tweet](#) 46 [+1](#) 1 [Like](#)

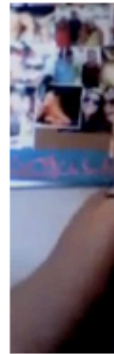
Over the weekend Alexandra Wallace, the UCLA student that was ostracized after uploading a racist rant against Asians to YouTube shortly after the tsunami in Japan, apologized and announced that she would no longer be attending UCLA.

Her apology, and the news of her leaving the school, was published in [The Daily Bruin](#), UCLA's online news source. The full letter, as printed in [The Daily Bruin](#), is as follows:

In an attempt to produce a humorous YouTube video, I have offended the UCLA community and the entire Asian culture. I the hurtful words I said and the pain it caused to anyone who watched. Especially in the wake of the ongoing disaster in Japan, I would do back my insensitive words. I could write apology letters all day and they wouldn't erase the video from your memory, nor would they be an appropriate action.

I made a mistake. My mistake, however, has led to the harassment of the publishing of my personal information, death threats, and being ostracized from an entire community. Accordingly, for personal safety reasons, I have decided to no longer attend classes at UCLA.

Alexandra Wallace



### Alexandra Wallace: Racist UCLA Student's Bikini Photos Revealed [26 PICS]

March 14, 2011 [Posted in 18+, A to Z, Alexandra Wallace, Girls, Headliner, Painful, Photos, Pics, Video, WTF](#)



[Like](#) 2k [Tweet](#) 83 [91](#) [reddit](#) 0 [Digg](#) [COMMENTS](#) 457



By COED Staff

Meet **Alexandra Wallace**. She attends **UCLA** and has a beef with Asians. Instead of keeping it to herself or going to a therapist to work out her issues she used her college education to post a **rant video** on YouTube. Word on the street is Asian gangs now have a hit out on her. Oh boy. We all say things that we regret, but this could haunt her for the rest of her life. Turns out Allie's also a bikini model. Since her ModelMayhem, **Facebook**, **Twitter**, and every other page affiliated with her has been pulled down, we managed to scoop up a library's worth of her modeling photos. How should UCLA handle this? Can YOU handle this?

# Issues

- Surreptitiously capturing behavior => privacy violations
- Capturing potentially criminal behavior => evidence
- But what about innocent until proven guilty?
- What about classic methods for ensuring a fair trial, like change of venue?
  - When the internet is involved, changing the venue doesn't help
- People do something stupid/bad
  - Retribution? --- it can never really be deleted
  - Reveal their private details online – where they live, their family, pictures, bikini model experience, etc.
  - Alexandra Wallace had to change her name, drop out of UCLA

# Wikileaks – Changing democracy!

<http://youtu.be/PvmfOaZ34Pk>

- Wikileaks Documentary
- 55 minutes long.
- Worth watching



The image shows a screenshot of a YouTube video player. At the top, the YouTube logo is visible on the left, and a search bar is on the right. Below the logo, the video title "WikiRebels: The Documentary | WikiLeaks & Julian Assange" is displayed. Underneath the title, the channel name "wozzek22" is shown, along with a "Subscribe" button and a "160 videos" dropdown menu. The main video area shows a close-up of a document with text, which is slightly blurred. Below the video, the progress bar indicates the video is at 00:33 / 50:55. To the right of the progress bar, the resolution "360p" is shown. Below the video player, there are buttons for "Like", "Add to", "Share", and "Report". To the right of these buttons, the number "41,515" is displayed, followed by a "Like" icon. Below the video player, the text "Uploaded by wozzek22 on Dec 10, 2010" is visible. At the bottom, there is a description: "Swedish Television's Jesper Huor and Bosse Lindquist exclusive rough-cut of first in-depth documentary on WikiLeaks and the people behind it!". To the right of the description, it says "424 likes, 2 dislikes".

# CS Concepts

- meta data
- RFID
- cookies
- IP address
- re-identification
- bio-metric data

# Social Issues

- cameras everywhere
- electronic monitoring
- social networking
- making money from our data
- vigilante justice
- gps tracking
- rfid in people
- edr in cars (black box)
- connecting the dots
- taking over your phone mic or laptop camera
- impact on creativity and exploration
- surreptitious posting