A Quick Comment on Processing

- We have written two kinds of Processing programs –
  - static, which only draw a picture
  - dynamic, which keep drawing a picture

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

What’s The Difference?

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

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

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?
- Name three recent cases of information going viral that could never have happened ten years ago.

Technology doesn’t violate privacy. People violate privacy.

….. Technology just makes it a lot easier/faster
### Sample Dialogue

<table>
<thead>
<tr>
<th>System Utterances</th>
<th>User Utterances</th>
</tr>
</thead>
<tbody>
<tr>
<td>S00: Welcome to the Communicator Travel Demonstration System. Please say your name.</td>
<td>U00: Jane Smith.</td>
</tr>
<tr>
<td>S01: Hello Jane, how may I help you?</td>
<td></td>
</tr>
<tr>
<td>S02: Can you provide the approximate departure time?</td>
<td></td>
</tr>
<tr>
<td>S03: United Airlines flight 169 departs Boston at 7:00 am and arrives San Francisco at 10:35 am. Can I help you with something else?</td>
<td></td>
</tr>
<tr>
<td>S04: American Airlines flight 195 departs Boston at 8:00 am and arrives San Francisco at 11:33 am. Is there something else I can do for you?</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Dialogue (cont.)

<table>
<thead>
<tr>
<th>System Utterances</th>
<th>User Utterances</th>
</tr>
</thead>
<tbody>
<tr>
<td>S05: Can you provide the approximate departure time?</td>
<td>U05: Um yeah I suppose I should leave sometime early in the morning.</td>
</tr>
<tr>
<td>S06: Can you provide the approximate departure time?</td>
<td>U06: I'd like to leave around 7 in the morning.</td>
</tr>
<tr>
<td>S07: American Airlines flight 196 departs San Francisco at 7:30 am and arrives Boston at 4:09 pm. What else can I help you with?</td>
<td>U07: Please book the flights.</td>
</tr>
<tr>
<td>S08: American Airlines flight 196 departs San Francisco at 7:30 am and arrives Boston at 4:09 pm. What else can I help you with?</td>
<td>U08: No thanks.</td>
</tr>
<tr>
<td>S09: I need an American flight American Airlines.</td>
<td>U09: Yes I did.</td>
</tr>
<tr>
<td>S10: I need an American flight American Airlines.</td>
<td></td>
</tr>
</tbody>
</table>

### Total Information Awareness

- [http://privacysos.org/tia](http://privacysos.org/tia)
Total Information Awareness

- Pharmacy purchases
- Elementary school attendance records
- Doctors Visits
- Application: School absences and pharmacy records could lead CDC to identify bioterrorism
- Assistant to Poindexter: “We were surprised that privacy was an issue”
- “The government can’t collect this information but we can pay Johns Hopkins to do it. They have a medical school.”

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

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
- Porn 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

What is the scariest thing in the chapter?

- Your ideas here!

…. How did we get here?

What technological innovations have brought us where we are today?
Just like the neurons, but built out of transistors

Integrated Circuits: Millions of logical gates

First: This meant there could be Personal Computers
- 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

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

Digital Footprint: Where you go, What you do on web

- A digital footprint is a collection of activities and behaviours recorded when an entity (such as a person) interacts in a digital environment. It may include the recording of activities such as system login and logouts, visits to a web-page, accessed or created files, or emails and chat messages. The digital footprint allows interested parties to access this data; possibly for data mining, or profiling purposes.
- Inputs to digital footprint include attention, location, time of day, search results and key words, content created and consumed, digital activity and data from sensor, and from the users social crowd. Some data can come from deep IP and Internet data, such as footprinting.
- Value created from the collection of inputs and analysis of the data are recommendation, protection, personalisation, ability to trade or barter and contextual adaptation.
Surprising Digital Footprint. Harry Potter.

- Shortly before release, photos of all 759 pages of the U.S. edition were leaked and transcribed, leading Scholastic to look for the source that had leaked it.
- EXIF metadata on pix:

Use of Security Cameras Exploded after 9/11

- London Subway Bombing
- Slouching towards Hell: the London bombers caught together on camera
- By David Harrison, Melissa Kite and Sean Rayment
- The police confirmed, for the first time, the bombers' identities as Mohammed Khan, Tube trains within seconds of each other - at around 8.50am. The fourth bomb captured they caught a Thameslink train to King's Cross, from where they fanned out on their devastating mission.

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’

Runkeeper: Courtesy of Prof. Jhala
It's easier than you think for your privacy to be violated without you knowing it.

Calls get recorded: instant broadcast?

Where you've been, who you've called

- Security researchers have discovered that Apple's iPhone keeps track of where you go – and save every detail of it to a secret file on the device which is then copied to the owner's computer when the two are synchronised.
- The file contains the latitude and longitude of the phone's recorded coordinates along with a timestamp, meaning that anyone who steals the phone or the computer could discover details about the owner's movements using a simple program.
- For some phones, there could be almost a year's worth of data stored, as the recording of data seems to have started with Apple's iOS 4 update to the phone's operating system, released in June 2010.
- “Apple has made it possible for almost anybody – a jealous spouse, a private detective – with access to your phone or computer to get detailed information about where you've been,” said Pete Warden, one of the researchers.

Only the iPhone records the user's location in this way, say Warden and Alasdair Allan, the data scientists who discovered the file and are presenting their findings at the Where 2.0 conference in San Francisco on Wednesday. “Alasdair has looked for similar tracking code in [Google's] Android phones and couldn't find any,” said Warden. “He hasn't come across any instances of other phone manufacturers doing this.”

Cell phone mikes can be remotely activated

Laws to catch up with technology lag the tech

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Smart Dust

- http://robotics.eecs.berkeley.edu/~pister/SmartDust/

SMART DUST
Autonomous sensing and communication in a cubic millimeter

32nds

New Law: Franken, in the Senate now

Jan 2013

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...

New Law: Franken, in the Senate now

Jan 2013

Are you revealing only what you want to reveal?

Mobile Monitor: a scary app!


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?
- Name three recent cases of information going viral that could never have happened ten years ago.
Digital Footprints: The Web, Social Media, and your privacy!
PART 2.

Interacting On The WWW

- Mostly we think of our small circle of friends & organizations when were online ...
- But really the whole world has access
- And, to some degree, were anonymous
- So... we can behave however we like, right?

NOT

How Much Do YOU Want To Reveal

- Even though we do the “revealing” we may be wise not to reveal “all”
- People have lost jobs based over FB posts
- Five Guidelines: Watch what you say about behavior, schedule, biases, employer, and the drama in your life

The Problem

- What you place on FB and Tweet can usually be widely accessed
- Grandmother (a FB user, too!), HR department, etc.
- Digitization, copying: it doesn’t go away... even if you try deleting
- When people first meet you, they may check you out online... what sort of image do you want to present?
- You’re not really anonymous after all

Facebook: NYPD Professional/Private overlaps
Guidelines – Think Twice About …

- Behavior – text or photos on socially unacceptable behavior has cost people jobs
- Schedule – posting or tweeting where you are not – “Off to Hawaii” – is direct help to burglars
- Biases – “hating” others is easy enough to do, but is that how you want your public image?
- The boss may follow your thoughts on your job
- Drama – the drama in our lives often consumes us; it’s hard not to tweet, post about it, but it often reveals information about others

“Offensitivity”

- Key points – when writing in online discussion
  - Thousands of people will see it
  - You can easily and unintentionally offend them
  - The collision comes from different cultures, social norms, backgrounds, assumptions, religions
  - You’re not wrong; they’re not wrong ... just different
  - They’re no more likely to change their thinking than you
- Tolerance, open-mindedness, patience needed

“Offensitivity”

- A good guideline for online behavior is
  - www.css-discuss.org/policies.html#offensitivity

Privacy violations: For good or evil?
Directly related to the essay due Sat 1/26 5PM

Essay Elaboration of Requirements

For us, “unlawfully recorded” means information that has been taken without the consent of the person’s knowledge.

For more information, please refer to Direct TV Guide chapter 1, pages 2-3. (Second chapter 2. Directly related to the essay due Sat 1/26 5PM)

See the Julian Assange Documentary: 
WikiLeaks: The Documentary (WikiLeaks & Julian Assange) (http://www.youtube.com/watch?v=IPglX8Bl3Dc)

Sample cases:
- Tony Bologna
- NYPD
- Alexandra Wallace
- Information taken without knowledge of subject or creator
- Information is video recordings, audio, documents, pictures
- Sample cases
- WikiLeaks
- Bilderberg Group
- Wikileaks

Surreptitious Recordings

- Can public distribution of surreptitiously obtained information ever be justified?
  - Surrerptitious: obtained, done, made, by stealth;
  - secret or unauthorized
  - Information taken without knowledge of subject or creator
  - Information is video recordings, audio, documents, pictures
  - Sample cases
    - WikiLeaks
    - Tony Bologna
    - Bilderberg Group
  - If public distribution is justified, then what are its moral considerations? The weight should be toward 1,000-word limit.

To Turn In: Write the essay using word processor, name it 1-year/1st-name and turn it in on the http://ecommons.ucsc.edu/ site as per instructions on Homework 1.
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=HPj6viBmU
- Numa Numa Guy
  - A/K/A Gary Brolsma
  - http://www.youtube.com/watch?v=W9m9UFhEARg&feature=relmfu

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
- Davis Pepper Spray
  - Changes the process of democracy
  - Right to free speech, to protest
  - Can’t go undetected

Recent Incidents: Cell phone videos

- 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.

Posting Audio/Video Online: Good or Evil?

- Alexandra Wallace original, 2.52 minutes
Jimmy song: Raised Money for Charity?

* Jimmy Response with humor!!

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Death Threats, Personal Info, Leave UCLA

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Issues

* Surrupitiously 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?

* Wikileaks Documentary.
  * 55 minutes long.
  * First five minutes, plus from time 30 min – 35 minutes in class
* Watch whole thing for homework!

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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.
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  * You never know what they might say. Example: Pulse App asks you to give permission for them to track every number you call
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  * Are you sure your privacy settings are as you want?
* Name three recent cases of information going viral that could never have happened ten years ago.

---

Privacy violations: For good or evil? How technology is changing democratic processes
More --- 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?

2 Homeworks this week! Plus next week!

- Coloring the Robot Due Next Tuesday.
- Privacy Essay: Due next Saturday. But do it today while it’s all fresh in your mind?
- Blinky Stars + Blinky in two parts. One part is due next Thursday!