Privacy; Personal Info; Anonymity

GC 495 Summer Interdisciplinary Seminar:
Privacy and Security in the Era of Computers and the Internet: Ethical, Legal, and Technological Issues

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Privacy & Personal Information

• The Impact of Computer Technology
• “Big Brother is Watching You”
• Consumer Information
• More Privacy Risks
• Protecting Privacy: Education, Technology, and Markets
  • Some tech tidbits in particular
• Protecting Privacy: Law and Regulation
Impact of Computer Technology

• Computers are not needed for the invasion of privacy.
• Computers simply make new threats possible and old threats more potent.
• Privacy can mean:
  • Freedom from intrusion.
  • Control of information about oneself.
  • Freedom from surveillance.
Invisible Info Gathering

Examples:

• Satellite surveillance.
• Caller ID.
• 800- or 900-number calls.
• Loyalty cards.
• Web-tracking data; cookies.
• Peer-to-peer monitoring.
• Others…. 
Secondary Use

• **Secondary Use** is using information for a purpose other than the one for which it was obtained. A few examples:

  • Sale (or trade) of consumer information to other businesses.
  • Credit check by a prospective employer.
  • Government agency use of consumer database.
Computer Matching

Combining and comparing information from more than one database. Some examples:

• Sharing of government agencies’ databases to detect fraud by recipients of government programs.
• Creating consumer dossiers from various business databases.
Profiling

Using data in computer files to predict likely behaviors of people. Some examples:

- Businesses engage in profiling to determine consumer propensity toward a product or service.
- Government agencies use profiling to create descriptions of possible terrorists.
Monitoring & Tracking

- Examples:
  - GPS (global positioning system).
  - Cell-phones.
  - Blackboxes in automobiles.
  - Other wireless appliances.
CELLULAR WRIST-WATCH for KIDS! GL GPS-911

July 18, 2006, 2:29 pm. Press Release Summary = With this “Dick Tracy” style cellular wrist-watch, your child will be the envy of the neighborhood!

Press Release Body = Introducing: GuardianLion’s GPS-911 Introductory Cellular/Wrist-watch for kids!

GL/GPS-911 serves well as an emergency child locator or emergency elder (under care) location device!

With this “Dick Tracy” style cellular wrist-watch, your child will be the envy of the neighborhood!

The GPS-911 introductory cell-phone/wrist-watch has three (3) programmable speed-dial buttons for calling only mom, dad, and maybe even grandma’s house. This high-tech gadget not only makes limited phone calls but it is equipped with a “gps panic button” that allows parents or the authorities to locate a child in the case of an emergency by means of an internet web-tracking service, (Something that a call to 911 on a regular cell-phone can’t typically do). If the child is too young to be responsible for the panic button, don’t worry, parents can enable it at a later time when they feel their child is ready. The web-tracking service allows parents to actually view their child’s location in real-time via the internet, simply log-in and locate!
Big Brother is Watching You: Feds

Federal Government Databases

• Purpose:
  • Determine eligibility for jobs and programs.
  • Reduce waste.
  • Detect fraud.
  • Law enforcement, including War on Terror.

• Regulations:
  • Privacy Act of 1974.
  • Intelligence Reform and Terrorism Prevention Act of 2004 (IRTPA) provides access to government and private databases without significant protections for privacy or correction of errors.
4th Amendment

• Expectation of Privacy:
  • Government’s rights are limited.
  • Government must have probable cause to search private premises or seize documents.

• Privacy Challenges:
  • New sensing and surveillance technologies enable the government access to private premises without physical entry.
  • New technologies provide the government with access to huge amounts of personal data in business databases.
  • Courts allow some searches and seizures of computers without search warrants.
Consumer Information

Consumer Databases
Gathering Information:

- Warranty cards.
- Purchasing records.
- Membership lists.
- Web activity.
- Change-of-address forms.
- Much more.....
Limiting Collection, Use, Sharing, and Sale of Personal Data:

- Consumers can take measures to restrict the use of their personal information.
- Some information sharing is prohibited by law.
- Some information sharing is prohibited by published, privacy policies.
Marketing: Using consumer info

• Trading/buying customer lists.
• Telemarketing.
• Data Mining.
• Mass-marketing.
• Web ads.
• Spam.
Credit Bureaus

• Uses of consumer information:
  • Evaluate credit risk of applicant.
  • Marketing.

• Regulation:
  • FCRA (Fair Credit Reporting Act)
  • Self-regulated by privacy principles.
Privacy Risks: SSNs

• Social Security Numbers (SSNs) Appear in:
  • Employer records.
  • Government databases.
  • School records.
  • Credit reports.
  • Consumer applications.
  • Many other databases.
National ID Card System

If implemented, the card could contain your:

- Name.
- Address.
- Telephone number(s).
- Photo.
- SSN.
National ID Card System

If implemented, the system could allow access to your:

- Medical information.
- Tax records.
- Citizenship.
- Credit history.
- Much more....
Personal Health & Medical Info

Data can include:

- History of substance abuse.
- Treatment for sexually transmitted disease.
- Extent of psychiatric help received.
- Any suicide attempt(s).
- Diagnosis of diseases (diabetes, angina, cancer, etc.).
- Use of prescribed medicines.
- Much more....
Available in paper form and/or online:

- Bankruptcy.
- Arrest.
- Marriage-license application.
- Divorce proceedings.
- Property ownership.
- Salary (if employed by state or federal government).
  - All U of Illinois Faculty.
  - All public K–12 teachers in Illinois (online!).
- Wills and Trusts.
- Much more....
Protecting Privacy: Education

Must include awareness of:

- How the technology works.
- How the technology is being used.
- The risks brought on by the technology.
- How to limit unwanted use of personal information.
- Applicable state and federal laws and regulations.
Protecting Privacy: Technology, policy

• Enhance privacy using:
  • Cookie disablers; cookie policies in your favorite browser.
  • Opt-in/opt-out options.
  • Decent quality passwords
  • Anonymous Web services, email (remailers), digital cash (more next slide)

• P3P effort at getting web sites to establish privacy policies still alive but not vigorous
Privacy/Anonymity Technology

• First is cryptography: a sine qua non. But not enough for many purposes

• If I don’t want anybody to know I’m sending an encrypted message, I need **steganography**—hiding secret information in innocuous looking ordinary **stuff**; e.g., mp3 or photo. (If copyright owner does it, might be called “digital watermark.”).

• Rumors that Al Qaeda used it; expert opinion is no.
Anonymous Digital Cash

- Need it to really do certain things anonymously online
  - Of course, only sensible for things that are 100% electronic—can’t anonymously order a gun
- Can describe theoretically how to build such a system using crypto building blocks
  - BUT how does its creator make money?
Anonymity: Browsing

- Anonymous proxy server is a service that relays your requests for web pages to the site, stripping off your IP address, etc.

- Issues:
  - Do you trust them?
  - Access to their site can be blocked
Anonymity: email

• There are anonymous remailers

• But a throw-away free email account may be better

  • Though there may be a trail of email addresses back to a real one.
Onion routing & TOR

* State of the art is TOR onion routing at IP layer: send messages encrypted on an unpredictable set of intermediate routers, each knowing only next hop

* TOR project started by Naval Research Lab (for open-source intelligence gathering); then funded by EFF with main goal of defeating traffic analysis

* About 1000 publicly accessible onion routers via TOR today
Protecting privacy: Markets?

• Markets could protect your privacy by:
  • Using trusted third parties.
  • Adhering to established privacy policies.
  • Purchasing consumer information directly from the consumer.
  • Developing and selling privacy-enhancing technologies and services.

• But: how much of a market is there? Who in the public is willing to pay for this?
Philosophical Views

• Samuel Warren & Louis Brandeis (1890):
  • Individuals have the right to prohibit publication of personal facts and photos.

• Judith Jarvis Thompson (1975):
  • No distinct right to privacy.
  • Privacy rights result from rights to our property, body, and contracts.

• Transactions:
  • Transactions have two parties, often with conflicting preferences about privacy. Who has privacy right to it?
Law & Regulation: Contrasting Views

• Free-market View
  • The parties of a transaction are viewed as equal.
  • Truth in information gathering.
  • Strong reliance on contracts.
  • Freedom of speech and commerce.

• Consumer-Protection View
  • The parties of a transaction are viewed differently.
  • More stringent consent requirements required by law.
  • Strong limitations on secondary uses of information required by law.
  • Legal restrictions on consumer profiling.
EU Privacy Regulation

- Limited collection of personal data.
- Data must be up-to-date and destroyed when no longer needed.
- Consent for sharing data is required.
- Sensitive data (e.g. religion) can only be provided with consent.
- Notify consumers about the collection and intended purpose of data.
- Restricted access and sharing of criminal convictions.
Tension with IP

- Anonymity for use of IP is in inherent tension with owner of the IP getting paid.
Copyright thought

• A man goes around the world to a country with a great industrial rise underway. Country has vast natural resources, and a very casual attitude towards copyright and patent laws protecting foreign IP.

• The man is a great creative genius, and fumes to see his work being widely sold in ridiculously cheap pirated versions.
And this is. . . .

• Charles Dickens visiting America a century and a half ago.