

Privacy

Computing, IT, Digital Media

Washington DC—NITRD Symposium—2.16.12

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Helen Nissenbaum

New York University

Work supported by NSF, DHS, and AFOSR

# IN THE NEWS

Sunday 12 February 2012

## The Telegraph

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### EU fights 'fierce lobbying' to devise data privacy law

It's in demand, but a new EU privacy law aims to return control of personal details to you.



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Kashmir Hill, Forbes Staff

Welcome to The Not-So Private Parts where technology & privacy collide

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TECH | 1/23/2012 @ 11:45AM | 3,508 views

## Supreme Court Deals Blow To Government Surveillance, Saying Warrant Needed For GPS

## Watchdog sues FTC over new Google privacy policy

Rather than take on Google, the Electronic Privacy Information Center is asking the court to block new information sharing and force federal regulators to protect Google users.

POPULAR

PRIVACY

## Don't Forgive Path, the Creepy iPhone Company that Misled Us Once Already

## SundayReview | The Opinion Pages

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH



Valentine's coming so Google Of

OPINION

### Facebook Is Using You

By LORI ANDREWS

Published: February 4, 2012

LAST week, Facebook filed documents with the government that will allow it to sell shares of stock to the public. It is estimated to be worth at least \$75 billion. But unlike other big-ticket corporations, it doesn't have an inventory of widgets or gadgets, cars or phones. Facebook's inventory consists of personal data — yours and mine.

# PRIVACY AND TECHNOLOGY

GPS, mobile, implantable devices

RFID, “emanations”

Biometrics

Pervasive sensory networks

Networked video and audio capture

Web cookies, flash cookies, web bugs

Databases, storage, retrieval

Information aggregation, mining, profiling

“Big data,” evidence based everything

The Internet, the Web

Social computing, Web 2.0

Email, mobile media

# WHY ARE THESE PRIVACY PROBLEMS?

- What are the triggers?
- What is violated?
- A definition of privacy?

## Obtaining information

Monitoring, surveillance, capture, tracking ...

## Utilizing information

Storage, aggregation, analysis, ...

## Distributing information

Communication, dissemination, disclosure, ...

• Communication, dissemination, disclosure, ...

# DISRUPTIVE INFORMATION FLOWS

Political solutions for a **political** issue

Policy & Normative solutions for a  
**public social** issue

**PRIVACY SOLUTIONS?**



“throw it over the fence...”

Scientific & technical solutions  
for a technological issue

**PRIVACY SOLUTIONS?**



# TECHNOLOGISTS JOIN THE FRAY

- 1970s: “availability; integrity; confidentiality”
- 1984: computer matching debate
  - serious threat or root out waste? CACM
- 1970s-2005: Crypto wars
- 1993: Cypherpunk Manifesto (Eric Hughes)



# INCREASING INTEGRATION

## R&D AGENCIES ENGAGE

- Wave 1
  - social, ethical, policy analysis
- Wave 2
  - ELSI, working side-by-side
- Wave 3
  - Privacy *in* technology; privacy *inspired* technology

# PRIVACY INSPIRED SCIENCE & TECHNOLOGY

- Identity cloaking, anonymization
- Do-Not-Track, cookie management
- Obfuscation, blurring
- Differential privacy
- Privacy relevant measurement and metrics
- Formal languages to express and enforce access policies
- Privacy preserving: data-mining, search, payment, ... etc.
- PETS integrated into services, systems, devices
- Accountability w/out identification, credentialing
- Application of crypto: just-in-time, just enough
- Secure data distribution; confidential communication
- Human-centered, usable design for privacy
- Secure data storage
- Privacy enhanced location based, mobile service

# WHAT MAKES THESE PRIVACY SOLUTIONS?

- contain
- constrain
- prevent
- divert
- direct
- modulate
- measure
- restrict
- Reveal

information flows

# Wave 4: Looking ahead

- More of 1, 2, and 3
- Achieving **meaningful** privacy
  - Hybridity
  - Conceptual fidelity
  - Privacy threat modeling
  - Coordinated action



Going forward ...