Privacy Implications of Facial Recognition, Facial Detection, and Digital Signage

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Detection vs. Recognition

- Facial recognition
  - Key attribute: Can identify unique features, enable tracking of individuals.

- Facial detection
  - Key attribute: Cannot reasonably be linked to identity – no images, no geometry, no personal data appended from other sources.
Commercial Applications

- Wide variety of uses online and offline.
- Online photo-tagging – Facebook, Google, and many more.
- Offline behavioral advertising – digital signage.
Intel® AIM Suite and Personal Privacy

- “Audience detection”, not “facial recognition” technology
- Measures key features on the viewers’ faces to determine gender and age range
- No images are recorded and no personal information is collected
How It Works – Digital Sign with Intel® AIM Suite

Sensor

Screen

Intel® AIM Suite software

Intel® Core Processor
The Challenge

- Physical stores typically only carry a few hundred products
- Not feasible to carry thousands of different types of shoes

The Solution

- Extend physical product range
- Adapt shoe selection based on demographics
- Intelligent wall – learning what products are selected over time

Other names and brands may be claimed as the property of other respected companies
Average Viewing Time by Content

Daily Avg. Ad Audience
Date Range: from 01-10-2011 to 10-31-2011

Example of a chart generated by simulated data
Other names and brands may be claimed as the property of other respected companies.
Example of a chart generated by exporting simulated data to a spreadsheet program.
Approaches to Privacy

- Legislation:
  - Current privacy laws inadequately address biometrics. (Except in Illinois.)
  - Legislation on facial recognition/detection alone is undesirable.
  - Biometrics should be part of baseline consumer privacy legislation based on Fair Information Practices – but such legislation may not apply to public places.
Approaches to Privacy

• Industry Codes of Conduct
  ◦ A “Safe Harbor” should be part of consumer privacy legislation.
  ◦ Codes should cover publicly-available biometric information.
  ◦ Must be enforceable, based on Fair Information Practices, and include input from consumer groups.
Industry Codes of Conduct

- Example: Digital signage industry has two codes of conduct.
  - Digital Signage Federation (DSF) – Digital Signage Privacy Standards
  - Point Of Purchase International Association (POPAI) – Code of Conduct
DSF Privacy Standards

- Apply to facial recognition/detection, and other methods of collecting personal data.

- Incorporate the full set of Fair Information Practices.

- The Center for Democracy & Technology (CDT) wrote the DSF Privacy Standards.

- Adopted without government pressure or major public scandal.
DSF Privacy Standards – Notice

• Layered Notice:
  ◦ Privacy policy on the website of the device owner
  ◦ Notice at the perimeter (i.e., supermarket breezeway)
  ◦ Notice on the device itself

• The notice should be easily readable.

• The notice should describe what is collected, how the data is used, etc.
DSF Privacy Standards – Consent

- Facial detection:
  - Opt out via notice – controversial

- Facial recognition:
  - Opt in consent
  - Does not opt consumer in to a distributed facial recognition network
DSF Privacy Standards – Accountability

- Internal accountability and training for employees.
- No clear estimate of compliance rates for DSF standards.
- Enforcement is difficult for self-regulation.
- DSF standards only address the digital signage niche.
Key Takeaways

- Facial recognition and detection pose distinct privacy issues that current law does not address.

- Most effective approach to privacy:
  - Baseline consumer privacy legislation combined with...
  - Enforceable industry privacy codes.

- General privacy recommendations:
  - Full set of Fair Information Practices, including...
  - Opt in for facial recognition, opt out for facial detection, and...
  - Layered notice.
Resources

• CDT Facial Recognition Paper: “Seeing is ID’ing – Facial Recognition & Privacy”

• CDT Digital Signage Paper: “A Framework for Digital Signage Privacy”

• Digital Signage Federation Privacy Standards: “Digital Signage Privacy Standards”
  http://www.digitalsignagefederation.org/standards

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Thank you!