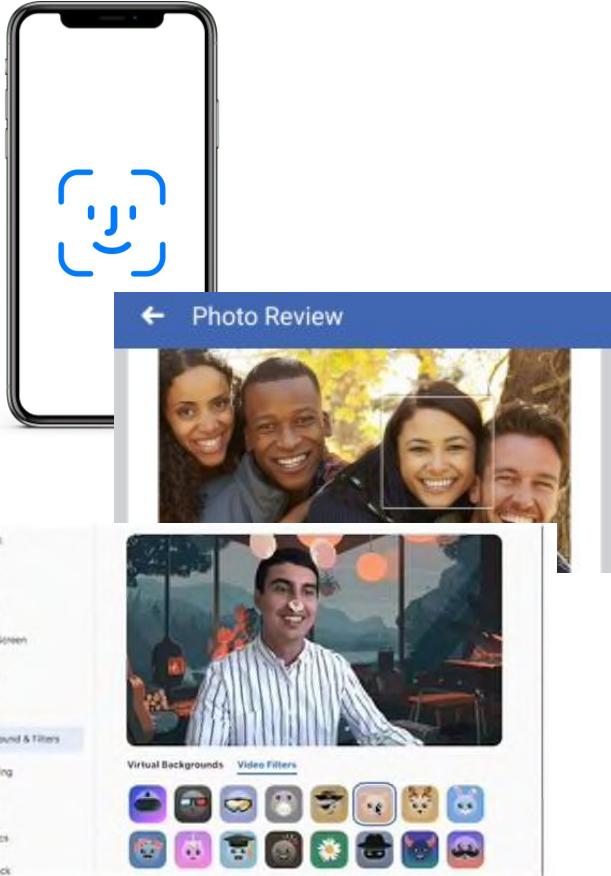


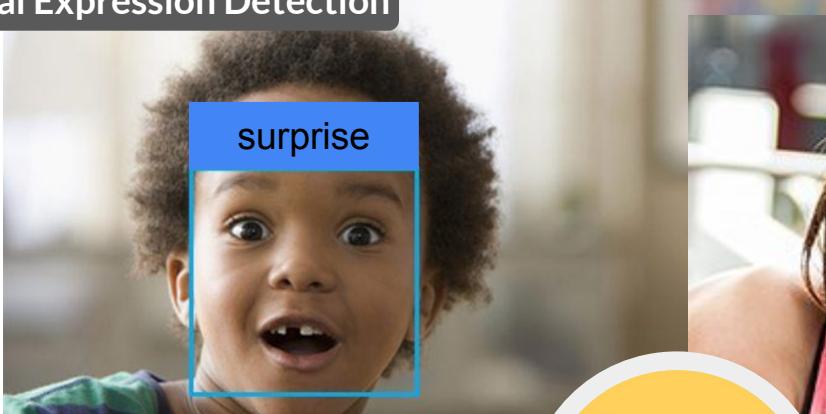


# Facial Recognition: Understanding Privacy Concerns and Attitudes Across Increasingly Diverse Deployment Scenarios

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## Facial Expression Detection



## Demographics Detection



## Scene Detection



## Facial Recognition

# What are people's attitudes and concerns about facial recognition?

## What are their privacy specific concerns?



# Rite Aid used facial recognition in secret across hundreds of its

The drugstore chain used the

NATION/WORLD NEWS POLITICS

## Clearview AI sued in California over ‘most

Business ▶ Economics Sustainable business Diversity & equality in business Small business Retail

Facial recognition

# The Guardian

Eden Gillespie

Sat 23 Feb 2019 21.11 EST

## Are you being scanned? How facial recognition technology follows you, even

### No dummy: This mannequin is spying on you

Several dozen EyeSee mannequins are already watching shoppers and gathering data with their camera eyes.



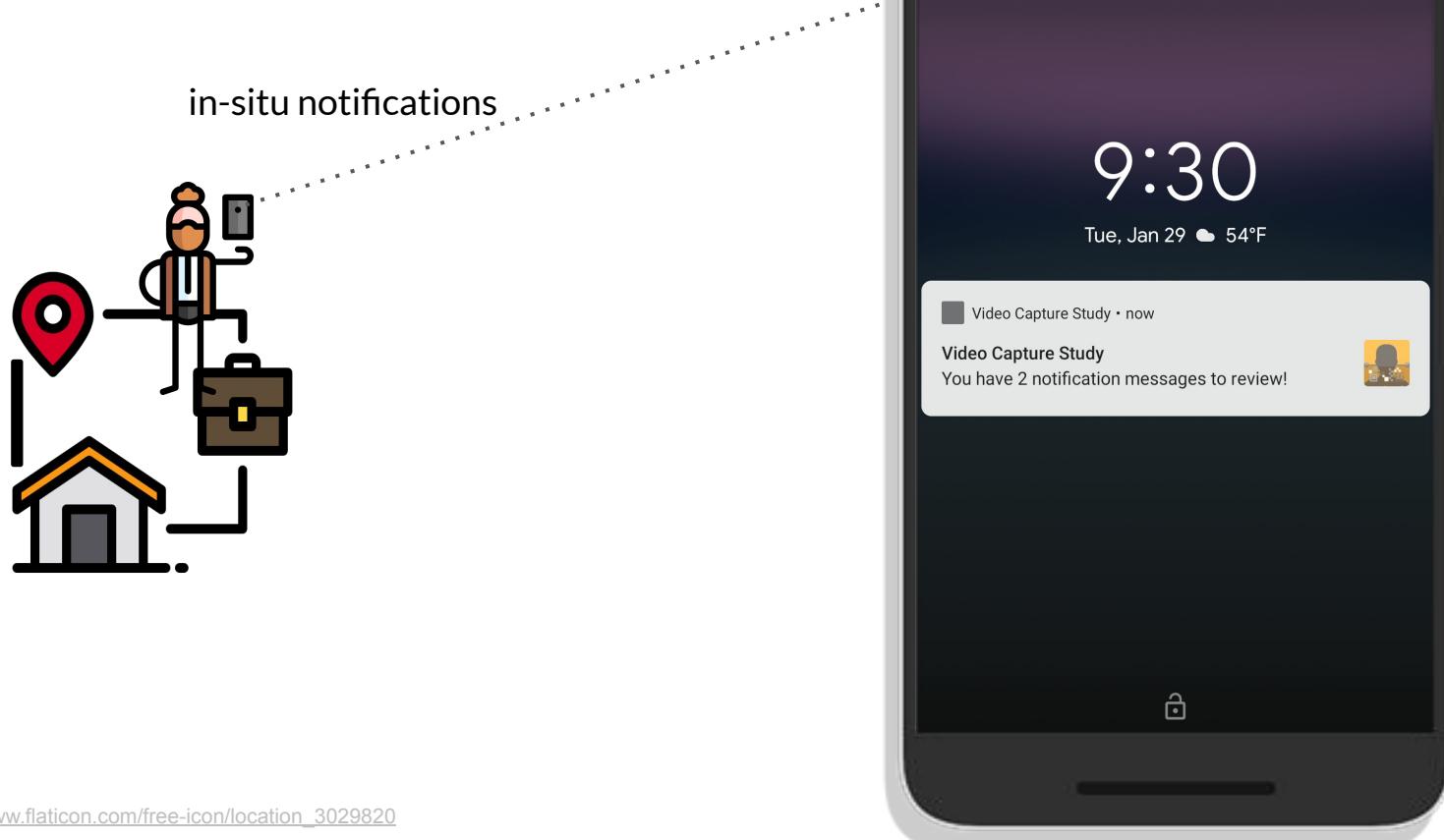
Tim Hornyak Nov. 21, 2012 12:45 p.m. PT



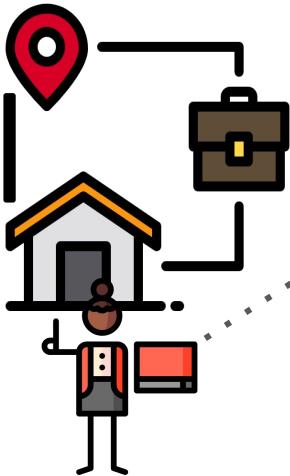
# A growing number of deployment scenarios



# Experience Sampling Study



# Daily Evening Summary



Video Capture Study: Evening Review

page 1 of 2

You indicated that you were near **Costco Wholesale** around 5:57 PM on Saturday, July 28.

**Data Practice:** Some places like Costco Wholesale have started to use surveillance cameras with anonymous face detection software. This software is capable of estimating the number of customers in line in order to optimize operation such as personnel allocation. It does not try to identify who each customer is. Assume that Costco Wholesale engages in this practice and the raw footage is discarded immediately after analysis.

We asked: Are you at Costco Wholesale by yourself?  
Were you with (a) \_\_\_\_? Please select all that apply.

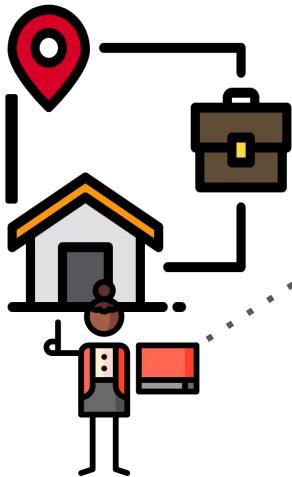
colleague(s)  
 client(s)  
 friend(s)  
 family member(s)  
 spouse  
 child(ren)  
 other

Q1. We asked: How surprised would you be about Costco Wholesale engaging in this data practice?  
At the time, you indicated that you would find this **very surprising**. Why? (Please select all that apply.)

I didn't think the technology was available.  
 I thought this would be illegal.  
 It never crossed my mind that someone would want to do this.  
 I would not expect Costco Wholesale to engage in this type of practice.

A screenshot of a Google Map showing a location in Montebello, California. The map includes a red marker indicating the user's location, a street view camera icon, and a compass rose. The address "Montebello, CA" is visible. A legend at the bottom right shows "page 1 of 2", "You", and "Report a map error".

# Daily Evening Summary



EveningReviewApp https://iot-evening-review.privacyassistant.org/?session\_id=cRN5V22kYro4mZxfKA6JZ6OPxVPuo5RFJEgZnOo

### Video Capture Study: Evening Review

**Progress Summary**

⌚ Study Duration  
Qualifying days completed: 0 (total required: 14)

💵 Potential Payment:  

Today's Potential Payment*	\$2.25
Potential Payment* So Far	\$0.25
Maximum Potential Payment*	\$49.25

📅 Study Day #1 (Sunday, August 19)  
On day #1, you received a total of 3 notification(s). You answered 1 of them within 5 minutes ( $1 \times \$0.25$  in potential payment\*). 2 of them you did not answer within 60 minutes ( $\$0$  in potential payment\*). If you answer all notifications within 5 minutes, you would have earned  $\$0.50$  more in potential payment\*.

**Start August 19's Evening Review**  
This will earn you additional  $\$2.00$  in potential payment\*.

\*Actual payment is subject to completion of 14 qualifying days. To maximize potential payment, respond within 5 minutes ( $\$0.25$ /notification). The next best option is  $\$2$ /day in potential payment for the evening review. Failure to complete the evening review within 48 hours will get you dropped from the study and result in forfeiture.

# Rich Qualitative Dataset

- Detailed responses from 123 participants
- 3,792 free-text entries and 10 interview transcripts
- Content analysis of textual responses
- Two coders, inductive coding

# What did we learn?

# Participants were concerned about anonymous demographics detection for advertising

*I understand that some ethnic groups might benefit from this (for instance, African American women need specific hair care products that aren't always easy to find.) But I am concerned about the potential for misuse of this technology to discriminate. Also, people don't always "look like" the racial or ethnic background with which they identify.*

”

# Participants were worried about incorrect detection and interpretation

*I think a lot of the times like my friend she locked herself out of her apartment this past weekend, so she tried to jump in through her window. So if a recognition program saw that, they might think that it is a thief or criminal or whatever. And that is not the case. She is not breaking into her own house. It needs to be able to interpret scenarios correctly. It needs to be able to have a context for them. Not just to assume that something looks like a criminal act is a criminal act.*

”

# Participants were concerned about racial and other biases introduced by facial recognition

*I think that is the danger of having that type of use for facial recognition. I think it can too easily be biased, intentionally or unintentionally. The person programming it might think that they might have statistics to back up the demographics of thieves or demographics of criminals, but I don't think that is a good way of deciding who is or who is not a criminal.*

”

# Perceived Privacy Risks of Facial Recognition

- Violation of solitude
- Unwanted exposure and violation of anonymity
- Non-consensual and insecure disclosure
- Inaccurate dissemination and violation of reserve

Samuel D. Warren and Louis D. Brandeis. The right to privacy. *Harvard Law Review*, 4(5): 193–220, 1890.

Alan F. Westin. Privacy and freedom. *Washington & Lee Law Review*, 25:166, 1968.

Daniel J. Solove. A taxonomy of privacy. *University of Pennsylvania Law Review*, 154(3): 477–564, 2006.

# Thank you!

- We analyzed textual responses of people's perceptions of facial recognition deployments collected as part of a 10-day experience sampling study with 123 participants
- We observed that participants' concerns about profiling, accuracy and bias
- We contextualized 4 major themes of privacy risks in light of established privacy frameworks



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This research was conducted as part of the Personalized Privacy Assistant Project. Please visit [www.privacyassistant.org](http://www.privacyassistant.org) for more information.

**PRIVACYASSISTANT.ORG**  
the personalized privacy assistant project