

# Towards **Usable Privacy** in Cross-System Personalization

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# Personalization

amazon.com **Prime** Hello, Yang Wang. We have [recommendations](#) for you. (Not Yang?) The All-New Kindle: Only \$139

Yang's Amazon.com | Today's Deals | [Gifts & Wish Lists](#) | [Gift Cards](#) [Your Account](#) | [Help](#)

Shop All Departments

Your Amazon.com | Your Browsing History | Recommended For You | Rate These Items | Improve Your Recommendations | Your Profile | Your Communities | Learn More

Yang, Welcome to Your Amazon.com [\(If you're not Yang Wang, click here.\)](#)

## Today's Recommendations For You

Page 6 of 35 (Start over)



[C# in Depth: What you need to master...](#) (Paperback) by Jon Skeet  
★★★★★ (40) \$29.69  
[Fix this recommendation](#)

[PSP 3000 Core Pack - Black](#)  
★★★★★ (115) \$169.99  
[Fix this recommendation](#)

[Philips Sonicare Advance HX4012 Compact Replac...](#)  
★★★★★ (63) \$54.95  
[Fix this recommendation](#)

[The Economics of Network Industries](#) (Paperback) by Oz Shy  
★★★☆☆ (2) \$30.26  
[Fix this recommendation](#)

[Term Sheets & Valuations - A...](#) (Paperback) by Alex Wilmerding  
★★★★★ (28) \$35.00  
[Fix this recommendation](#)


> [See more recommendations](#)

## Coming Soon for You



[Beginning HTML5 and CSS3: N...](#) (Paperback) by Christoph...  
\$26.39

### Tap into Your Friends BETA



Connect to Facebook to get Amazon recommendations for you and discover your friends' Favorites and Likes

[Learn more and Connect](#)

(You can disconnect at any time)

### Improve Your Recommendations

Philips Sonicare Advance 4100 Sonic Power Toothbrush

Rate this item

x | ★★★★★

This was a gift

Don't use for recommendations

.....

THOSE YOU OWN (0)

# Cross-System Personalization

**Connect Amazon and Facebook** Close

**Improve your Amazon shopping experience by tapping into your Facebook network.**

- Discover Amazon recommendations for movies, music, and more based on your Facebook profile.
- See upcoming birthdays and find Amazon Wish Lists for your friends on Facebook more easily.
- Get gift suggestions for your friends based on their Facebook profiles.
- Explore your friends' profiles and see who has similar interests.

**Your personal Amazon data will not be shared with Facebook.**

- Amazon *will not* share Your Account information with Facebook.
- Amazon *will not* share your purchase history with Facebook.
- Amazon *will not* attempt to contact your friends on Facebook.

[Connect with Facebook](#)  
(You will be asked to approve this connection)

**Tap into Your Friends** BETA

Connect to Facebook to get Amazon recommendations for you and discover your friends' Favorites and Likes

[Learn more and Connect](#)  
(You can disconnect at any time)

**Improve Your Recommendations**

Phillips Sonicare Advance 4100 Sonic Power Toothbrush

Rate this item  
x|☆☆☆☆☆

This was a gift  
 Don't use for recommendations



### Improve your Amazon shopping experience by tapping into your Facebook network.

- Discover Amazon recommendations for movies, music, and more based on your Facebook profile.
- See upcoming birthdays and find Amazon Wish Lists for your friends on Facebook more easily.
- Get gift suggestions for your friends based on their Facebook profiles.
- Explore your friends' profiles and see who has similar interests.






 **Connect with Facebook**

(You will be asked to approve this connection)

### Your personal Amazon data will not be shared with Facebook.

- Amazon *will not* share Your Account information with Facebook.
- Amazon *will not* share your purchase history with Facebook.
- Amazon *will not* attempt to contact your friends on Facebook.

Amazon.com is requesting permission to do the following:

-  **Access my basic information**  
Includes name, profile picture, gender, networks, user ID, list of friends, and any other information I've shared with everyone.
-  **Access my data any time**  
Amazon.com may access my data when I'm not using the application
-  **Access my custom friend lists**
-  **Access my profile information**  
Likes, Music, TV, Movies, Books, Quotes, Activities, Interests, Birthday and Current City
-  **Access my friends' information**  
Birthdays, Current Cities, Likes, Music, TV, Movies, Books, Quotes, Activities and Interests



[Report Application](#)

# Privacy Issues

## **Privacy Regulations**

Purpose specificity, proportionality

## **User Concerns**

Strong aversion to online tracking, targeted ads

# Usable Privacy

**Enabling technologies are necessary**

Crypto, access control...

**Usable privacy is also important**

Info provision, usable control, nudges...

# Privacy Policy

## Topics

### Privacy, Security & Accessibility

- Privacy Notice
- Conditions of Use
- Amazon Accessibility Resources
- Safety and Security Tips
- Our Efforts to Stop Spoofing
- Your Amazon.com Bill of Rights
- A-to-z Guarantee Protection
- Identifying Amazon E-mail
- Phishing or Spoofed E-mails

### Shipping & Delivery

- Where's My Stuff?
- Tracking Packages
- U.S. Shipping Rates and Times
- International Shipping
- Amazon Prime
- FREE Super Saver Shipping
- More...**

### Returns and Refunds

- Return Policy
- Gift Returns
- Exchanging a Broken or Incorrect Item
- Packing and Sending Your Return

## Amazon.com Privacy Notice

**Last updated: October 1, 2008.** To see what has changed, [click here](#).

Amazon.com knows that you care how information about you is used and shared, and we appreciate your trust that we will do so carefully and sensibly. This notice describes our privacy policy. **By visiting Amazon.com, you are accepting the practices described in this Privacy Notice.**

- [What Personal Information About Customers Does Amazon.com Gather?](#)
- [What About Cookies?](#)
- [Does Amazon.com Share the Information It Receives?](#)
- [How Secure Is Information About Me?](#)
- [What About Third-Party Advertisers and Links to Other Websites?](#)
- [Which Information Can I Access?](#)
- [What Choices Do I Have?](#)
- [Are Children Allowed to Use Amazon.com?](#)
- [Does Amazon.com Participate in the Safe Harbor Program?](#)
- [Conditions of Use, Notices, and Revisions](#)
- [Examples of Information Collected](#)

## What Personal Information About Customers Does Amazon.com Gather?

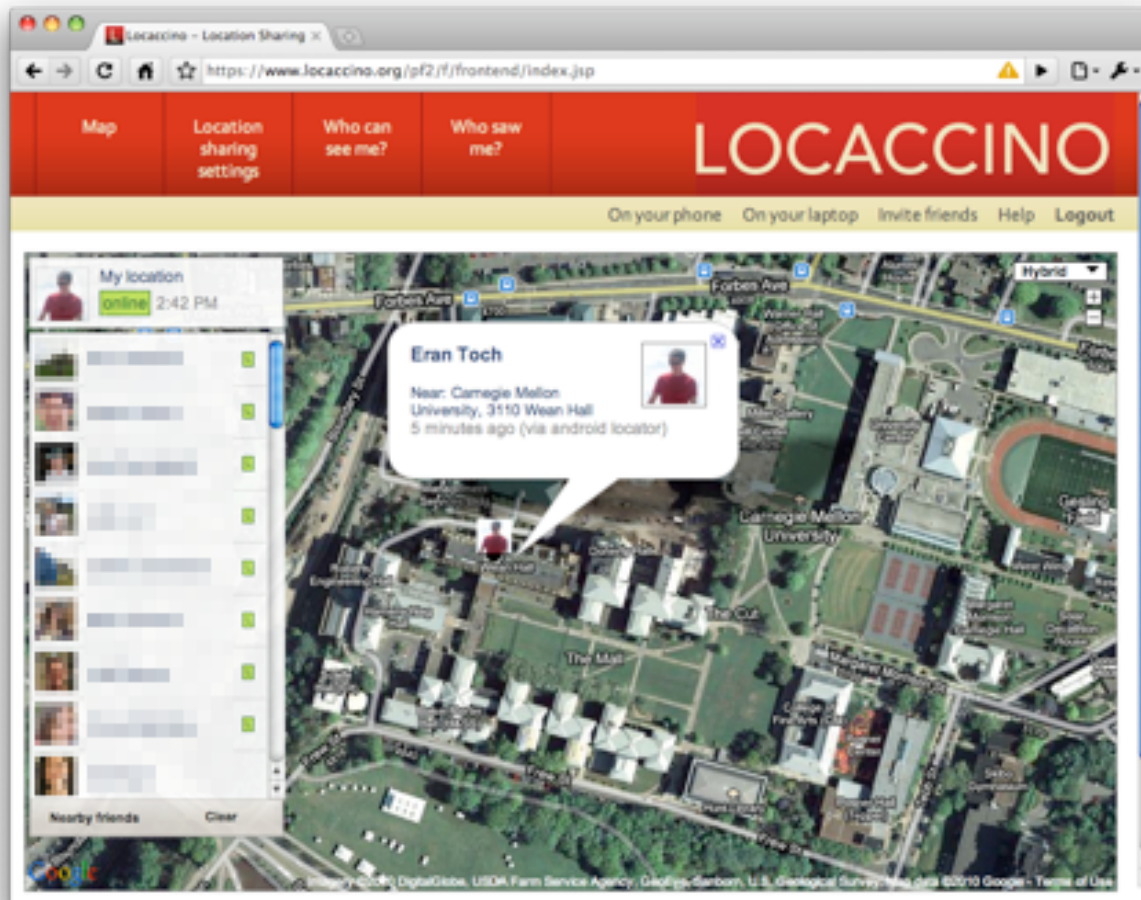
The information we learn from customers helps us personalize and continually improve your shopping experience at Amazon.com. Here are the types of information we gather.

- **Information You Give Us:** We receive and store any information you enter on our Web site or give us in any other way. [Click here](#) to see examples of what we collect. You can choose not to provide certain information, but then you might not be able to take advantage of many of our features. We use the information that you provide for such purposes as responding to your requests, customizing future shopping for you, improving our stores, and communicating with you.
- **Automatic Information:** We receive and store certain types of information whenever you interact with us. For example, like many Web sites, we use "cookies," and we obtain certain types of information when your Web browser accesses Amazon.com or advertisements and other content served by or on behalf of Amazon.com on other Web sites. [Click here](#) to see examples of the

| information we collect            | ways we use your information      |           |               |           | information sharing |               |
|-----------------------------------|-----------------------------------|-----------|---------------|-----------|---------------------|---------------|
|                                   | provide service and maintain site | marketing | telemarketing | profiling | other companies     | public forums |
| contact information               |                                   | opt out   |               |           |                     |               |
| cookies                           |                                   | opt out   |               |           |                     |               |
| demographic information           |                                   | opt out   |               |           |                     |               |
| financial information             |                                   |           |               |           |                     |               |
| health information                |                                   |           |               |           |                     |               |
| preferences                       |                                   | opt out   |               |           |                     |               |
| purchasing information            |                                   | opt out   |               |           |                     |               |
| social security number & gov't ID |                                   |           |               |           |                     |               |
| your activity on this site        |                                   | opt out   |               |           |                     |               |
| your location                     |                                   |           |               |           |                     |               |

P.G. Kelley, L.J. Cesca, J. Bresee, and L.F. Cranor. Standardizing Privacy Notices: An Online Study of the Nutrition Label Approach. CHI2010

# User-Controllable Privacy Learning



P.G. Kelley, P. H. Drielsma, N. Sadeh, L.F. Cranor. User Controllable Learning of Security and Privacy Policies. AISEC 2008

# Social Media Privacy Control

If you share your private Twitter post, more people can view it.

Close

Enter post text:  
Billion dollar market - s  
h encrypted data #soups2010

Share to:  Facebook Customize |  Private Edit |  Protected |  Add My Location

Submit

This is a dynamic Viewing list. You can check who will view your message after you publish it.

| All | Facebook | Google Buzz | Twitter |
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| Xir |          |             |         |
| ke  |          |             |         |

# Does Information Always help?



Image source: Google image search

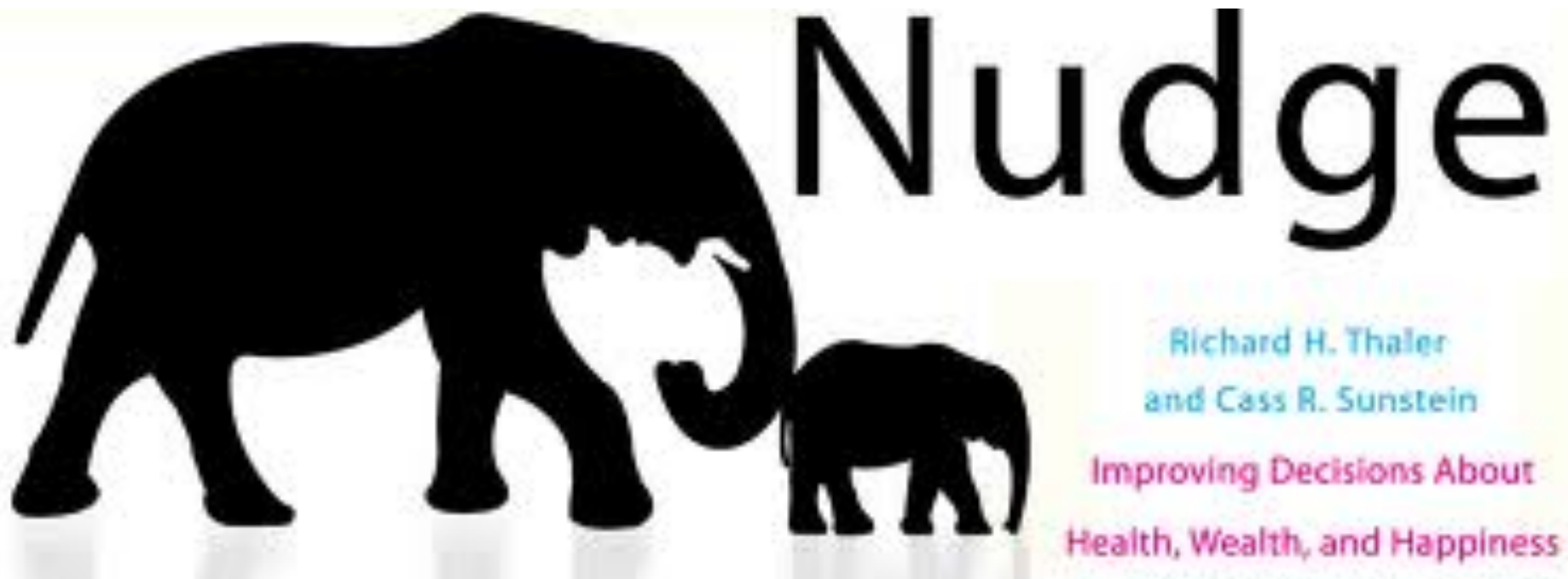
# Predictably Irrational

## **Human cognitive or behavioral biases**

Hyperbolic discounting, overconfidence, and more

## **“I regretted the minute I pressed share”**

User regrets in social media



# Nudge in Real Life



Image source: [us1.campaign-archive1.com](http://us1.campaign-archive1.com)

# Privacy Nudge

## **Nudge Users into Certain Directions**

Content-based reminder

Privacy-friendly defaults

Leverage social influence

...

Alessandro Acquisti. Nudging Privacy: The Behavioral Economics of Personal Information. IEEE Security & Privacy, Vol. 7, No. 6. (November 2009), pp. 82-85.



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<http://cups.cs.cmu.edu/>

**Carnegie Mellon**