# Interaction Design

Section 2: Patterns & Principles

Dave Malouf & Bill Scott

## background

**OPEN SOURCE** 

code produced at Sabre.

**BROWSER SUPPORT** 

Rico is provide free and open-source (Apache 2.0 License) for either your

Rico has been tested on IE 5.5, IE 6,

Mac IE 5.2 support. Support will be

provided in a near future release for

Firefox 1.0x/Win, Camino/Mac, Firefox

1.0x/Mac. Currently there is no Safari or

personal or commercial use. Sabre Airline

Solutions retains the copyright on the Rico



Desktop applications have long used drag and drop in their interfaces to simplify user interaction. Rico provides one of the simplest interfaces for enabling your web application to support drag and drop. Just register any HTML element or JavaScript object as a draggable and any other HTML element or Jav handles the rest.

### CINEMATIC EFFECTS

When actions are no longer occurring just at the page level but within required to clue the user on what has transpired. Cinematic effects si transitions can communicate change in richer ways than traditional Rico provides several cinematic effects as well as some simple visual

#### BEHAVIORS

Take some raw HTML and sprinkle in some behaviors and what do you Rico you can get an Accordion component like those found in Macror Laszlo. Just nest some DIVs and with one line of JavaScript turn your an accordion. And the latest behavior is the LiveGrid, LiveGrid allow connect an Html table up to a stream of Ajax responses. Ajax reques automatically called during table scrolling. The result is now Html tal an unlimited amount of data scrolled into view on the fly as needed! behaviors are planned!

#### ▶ GROUP RELATED ITEMS

▶ ORGANIZE SCREEN/PAGE

#### Welcome

Welcome to the Yahoo! Design Pattern Library. We are very happy to be sharing our library with the design and development community. This is our first drop of what we hope to be a monthly release cycle for the publication of patterns. In many cases we have bundled the patterns with pointers to related code from the Yahoo! User Interface Code Library. We hope this is a useful resource and look forward to your feedback.

#### What's a Pattern?

A pattern describes an optimal solution to a common problem within a specific context. more..

Site Search

Search

#### Recent Patterns



#### Auto-Complete

The user needs to enter an item into a text box which could ambiguous or hard to remember and therefore has the potential to be mis-typed

 Cargo Ship Blocks Sue: International Observers

AP Reuters AFP USATOD

Module Tabs

The user needs to navigate Modules through one or more stacked Drag and Drop Objects panes of content without ▶ In Page Editing refreshing the page.

Breadcrumbs

Fly-out Menus

Horizontal Bar Hub and Spoke Left Navigation

> Module Tabs Navigation Tabs

Auto Complete

Calendar Picker

Item Pagination

Search Pagination

Architecture Review

Rating an Object

Writing a Review

Drag and Drop

CALL ATTENTION

Sliders

- IMPROVE READABILITY
- Ratings & Reviews Review Architecture

### Results Page: 1 2 3 4 Next

#### Search Pagination

of search results ranked by relevance that is too large to easily display within a single

### ica > United States > New Yor ew York City > Things to do

Travel > Guides > North Amer

### **Breadcrumbs**

User needs to navigate potentially large quantities of information efficiently without becoming lost.

### lews Home U.S. Business Photos Opinion Local News Odd

#### Navigation Tabs

The user needs to navigate through a site to locate content and features and have clear indication of their current location in the site.



#### Rating an Object

The user needs to view a set A user wants to quickly leave their opinion on an object, with minimal interruption to any other task flow they are involved in.



#### Drag and Drop Modules

The user needs needs to re-arrange the layout of modules on a web page directly with the mouse.



#### Object Pagination

The user needs to view data items from a potentially large set of sorted data that will not be easy to display within a single page.



### Writing a Review

User wants to share her opinion with others about an object (place, person, thing) in greater detail than a simple rating.

See Rico in Action!

## Origin of Patterns

A Pattern Language, Alexander, 1977

Dissatisfied with sterile, impersonal design

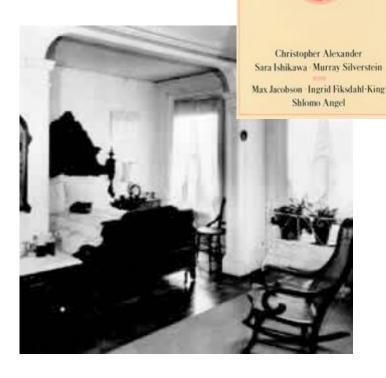
# Defined it as Solution to a problem in context

## Captured

Situation, competing constraints, canonical solution

## Examples

Couples Realm, House for a Couple, Sitting Circle, Marriage Bed



A Pattern Language
Towns Buildings Construction

## Origin of Patterns

Applied to software design, Gang of four, 1995

1996, Alexander raises the challenge higher

User experience patterns

1997, Tidwell's Common Ground

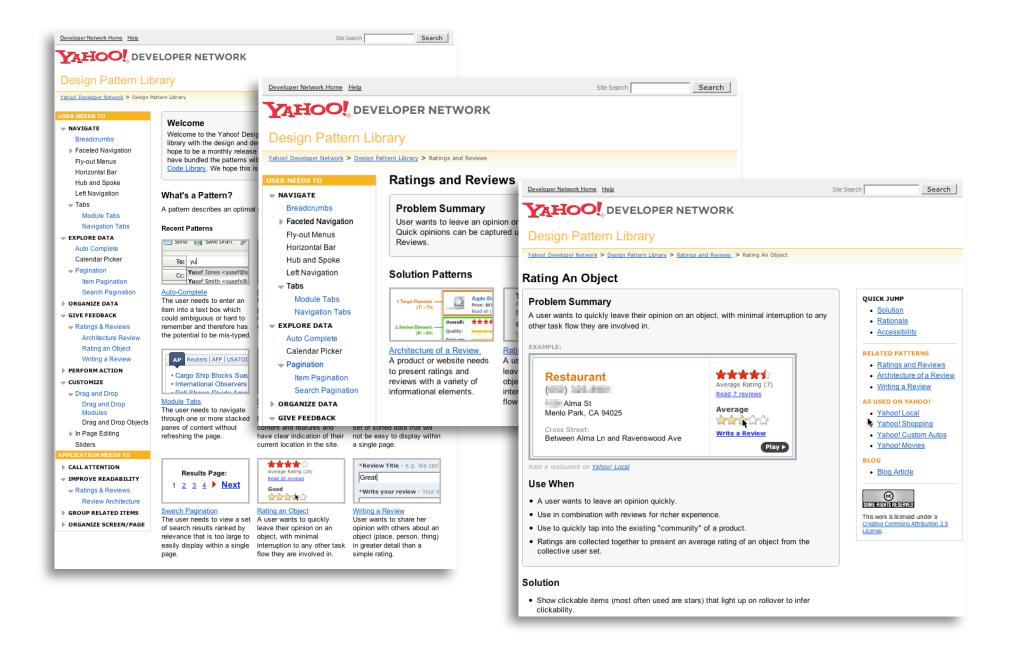
Welie's pattern site

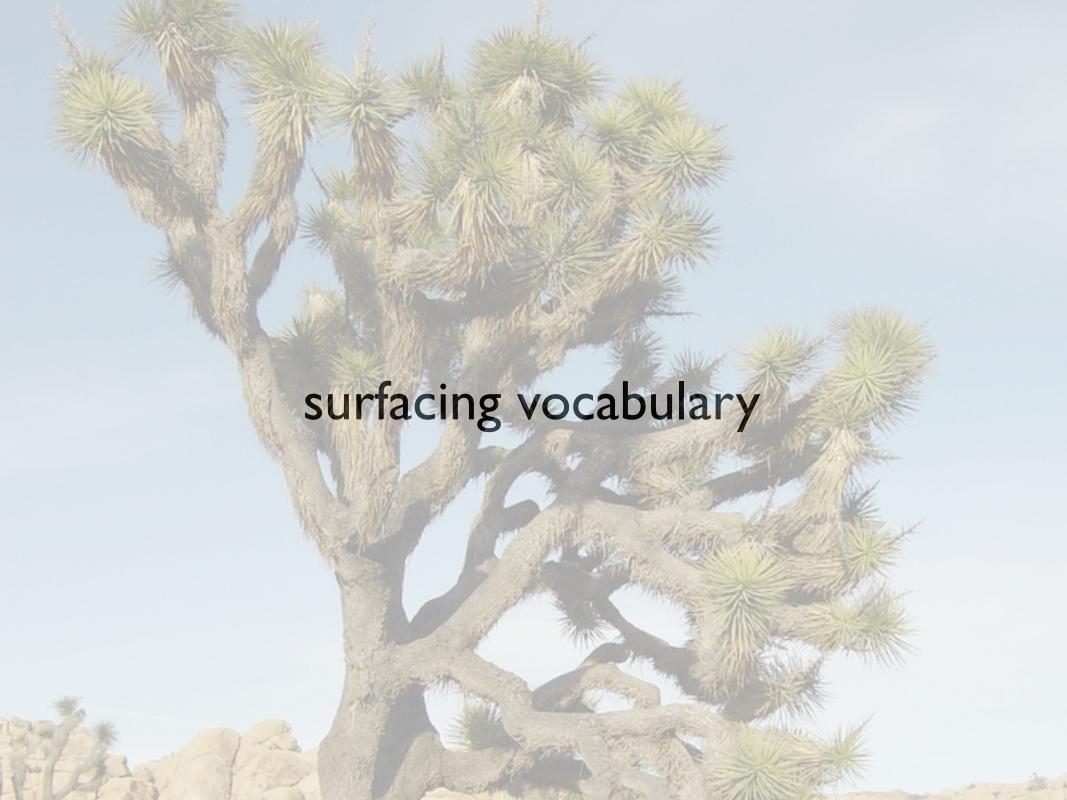
Design of Sites book

2005, Tidwell, Designing Interfaces



## developer.yahoo.com/ypatterns





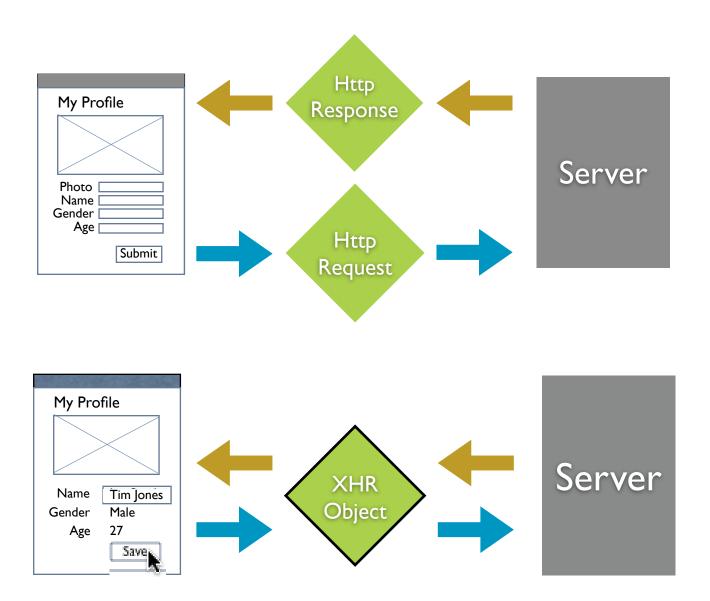
## current patterns

Breadcrumbs. Module Tabs. Navigation Tabs. Auto Complete. Pagination. Item Pagination. Search Pagination. Ratings and Reviews. Architecture of a Review. Rating an Object. Writing a Review. Drag and Drop. Drag and Drop Modules. Transition. Dim. Brighten. Cross Fade. Contract. Expand. Fade In. Fade Out. Move. Self-Healing. Slide. Highlight. Invitation. Cursor Invitation. Drop Invitation. Tool Tip Invitation. Hover Invitation.

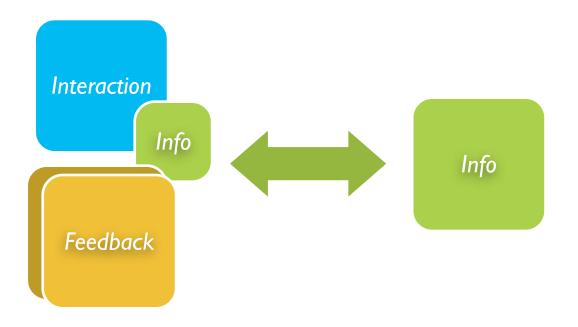
## rich patterns

Drag and Drop. Drag and Drop Modules. In Page Editing. In Page Custom Editing. Direct State Editing. Grid Cell Editing. Inline Custom Editing. Inline Tag Editing. Popup Custom Editing. Slide-out Custom Editing. Inline Text Editing. Persistent Portals. Inline Reordering. Indication. Busy Indication. Cursor Busy. In Context Busy. In Context Progress. Inline Status. Auto Complete. Balloon Error Tip. Deferred Content Loading. Dynamic Goal. Narrowing Choices. Refining Search. Live Search. Dynamic Filter. Invitation. Cursor Invitation. Drop Invitation. Tool Tip Invitation. Hover Invitation. Detail Zoom. Opacity Focus. Configurable Module - Faceplate. Configurable Module - Flip It. Configurable Module - Inline Configure. Configurable Module - Slide Out Drawer. Slide Out. Flip. Opacity Fade. Endless Scrolling. Expandable Paging Boundary. Fresh Content. Hover Detail. In Place Drill Down. Inline Assistant. Inline Validation. Validate Then Suggest. On Demand Refresh. Periodic Refresh. Resizable Modules. Scrolling Modules. Auto Save. In Context Tools. Remembered Collection. Remembered Preferences. Auto Form Fill. Rating an Object. Transition. Brighten Transition. Cross Fade Transition. Dim Transition. Expand Transition. Fade In Transition. Fade Out Transition. Flip Transition. Move Transition. Self-Healing Transition. Collapse Transition. Slide Transition. Rich Internet Object. Available. Selected.

## classic model. rich model.



## interaction. feedback. information.



## information near... rich interaction



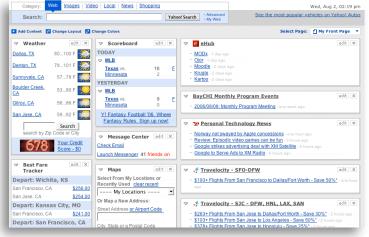


# design principles for richness

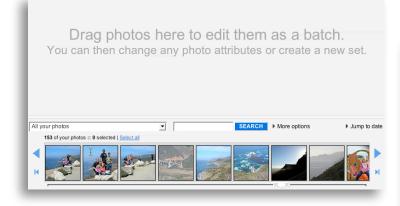


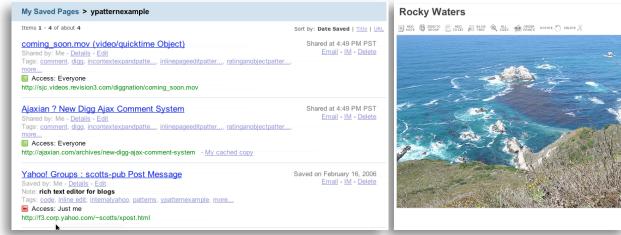
# interaction principles

## principle. make it direct.

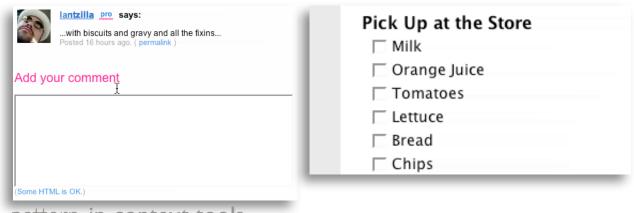


pattern. drag & drop.





pattern. inline editing.



pattern. in-context tools.

### **Inline Editing**

Use inline forms where possible Use lightweight popups for ancillary information



State park near our new home in San Jose (next to Milpitas)

SAVE

OR

CANCEL



Wed 11/23/05 (day 1) - Yosemite Natl Pk, Yosemite National Park



From \$97.00 to \$146.00 per night. •Reserve Now

S559-252-4848

Yosemite Natl Pk, CA 95389

United States

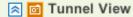
In the valley of Yosemite National Park

Notes: [ Ed ≥ ]

Tags: [ Ed & ]

Dates: [ Add ]

Wed, Nov 23rd - Fri, Nov 25th [ Ed k ]



Wawona Rd

Yosemite National Park, CA 95389

United States

This breathtaking and spectacular sight is located on Highway 41 just north of Wawona, and just south of the Valley Floor. This popular spot

is the most photographed view of the valley. It received ....



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### Yahoo! Groups: scotts-pub Post Message

Saved by: Me - <u>Details</u> - <u>Edit</u> Note: **rich text editor for blogs** 

Tags: code, inline edit, internalyahoo, patterns, ypatternexample, more...

Access: Just me

http://f3.corp.yahoo.com/~scotts/xpost.html



Shared at 4:49 PM PST Email - IM - Delete

Saved on February 16, 2006 Email - IM - Delete



### **In-context tools**

Same as context menus
Only good for single operations
Can actually slow you down

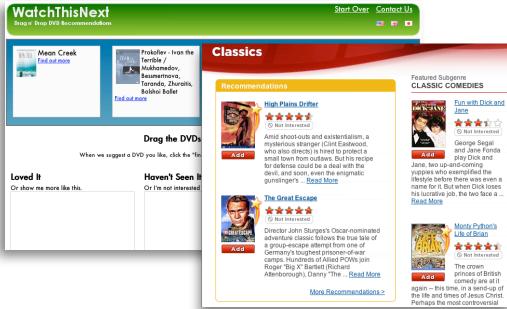


☐ Create a home page for the VisDe to make findability easier
☐ Edit ☐ Account for experimental patterns as well as established patterns



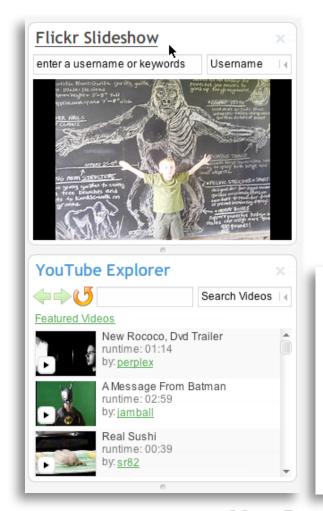
Pick Up at the Store
☐ Orange Juice
☐ Tomatoes ☐ Lettuce
☐ Bread
Chips Add Item
Make a new list Reorder lists
Remove from sidebar, Delete this page, Email me this page  Send email to this page: miles12betty@billwscott.backpackit.cc
Changes   Help   Text Formatting   Weblog   Forum   Privacy





## Use Drag & Drop where appropriate

Not for simply setting an attribute Don't construct artificial visual constructs

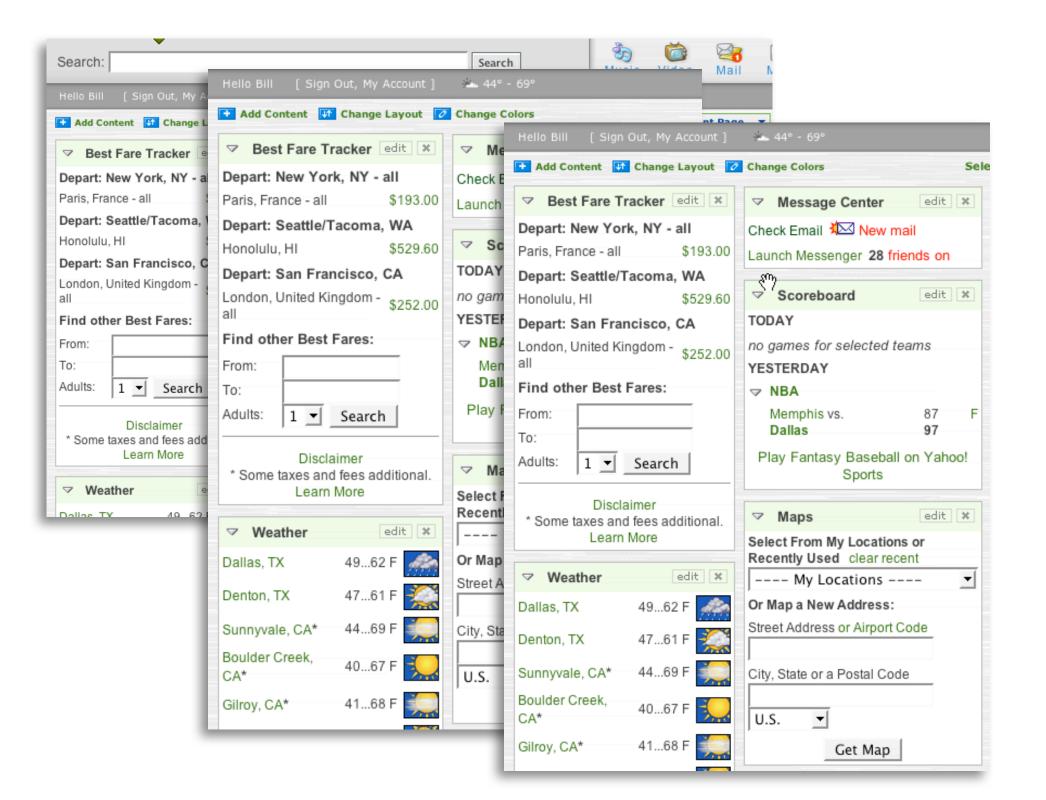


- Pick Up at the Store DRAG Chips DRAG Milk oras Bread DRAG Orange Juice 2 DRAG Tomatoes DRAG Lettuce
- What is spam?
- Can I transfer my message credits?
- How do I delete my HandyPay account?
- · What if I didn't receive my full
- message package?

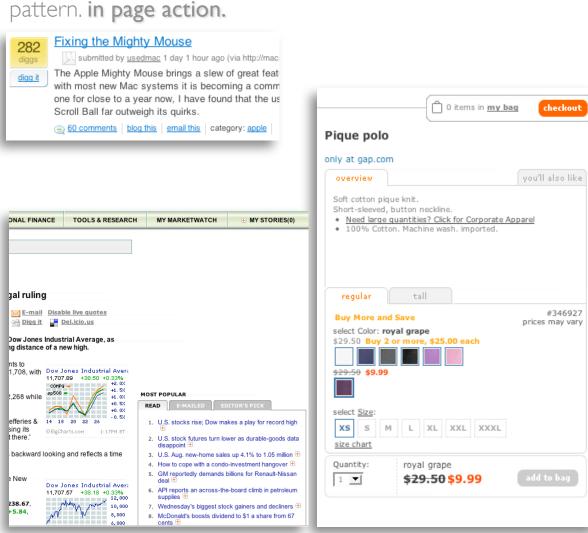
  I need to contact customer care regarding the Compose Text Message service.

## Use Drag & Drop where appropriate

Not for simply setting an attribute Don't construct artificial visual constructs Good for layout changes Needs transitions



## principle. keep a light footprint.



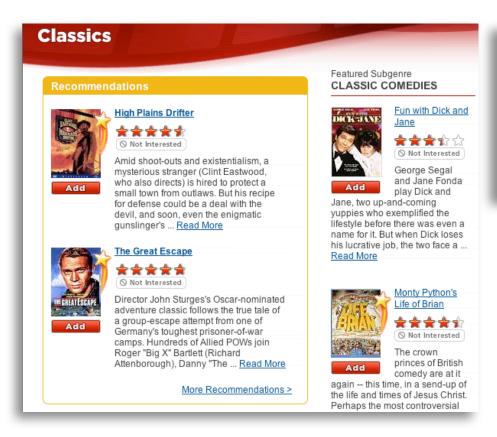
pattern. rating an object.

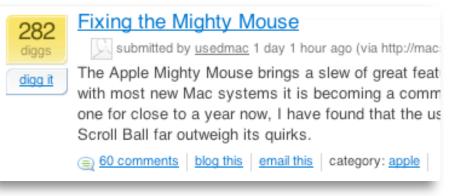


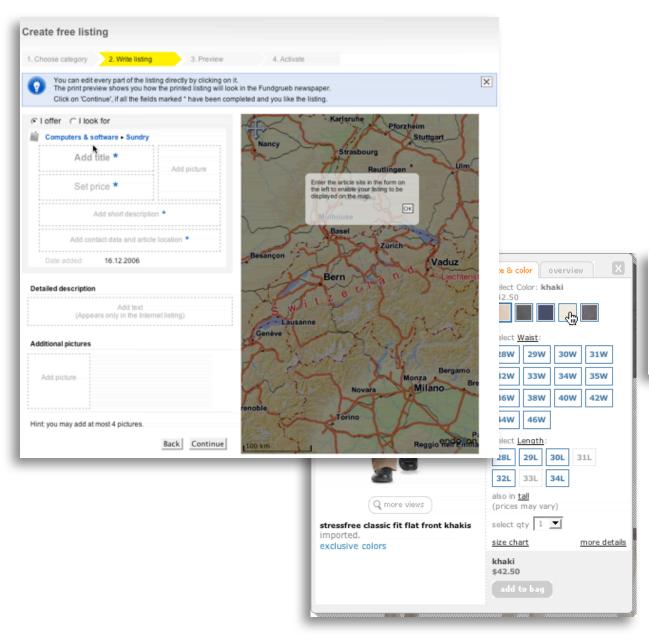
pattern. remembered collections.

### Remove the "pain points"

Shorten the path Keep actions immediate and light Use hover, blur, focus; avoid heavy events







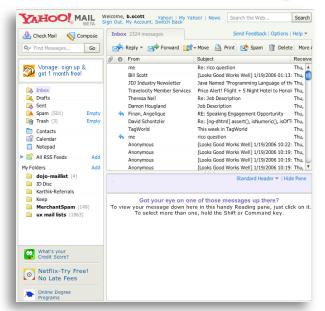
## Design for engagement

Use invitations & feedback
Treat it like an impusle aisle
Theory of fun
(Kathy Sierra stuff)

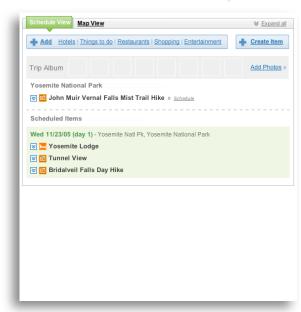


## principle. cross borders reluctantly.

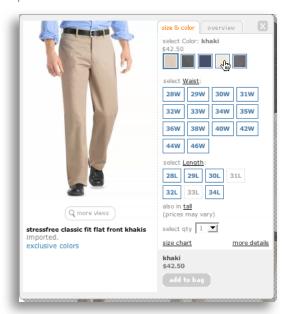
### pattern. on-demand scrolling.



### pattern. in-context expand.

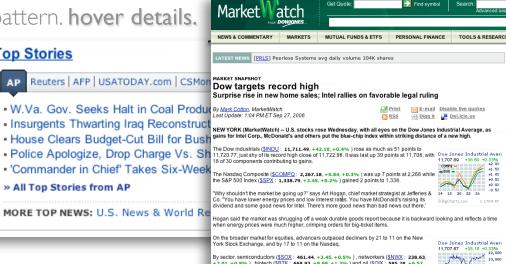


### pattern. inline assistant.



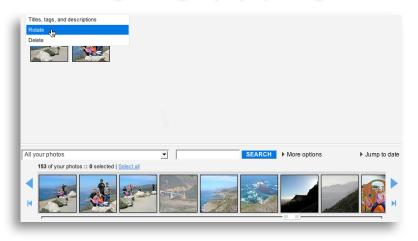
### pattern. hover details.





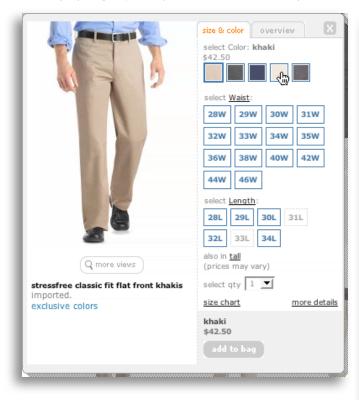
+1.1%) and oil service (SOSX: 185.02, +3.76, +2.1%) stocks put in solid gains.

## pattern. lightweight popup + lightbox.

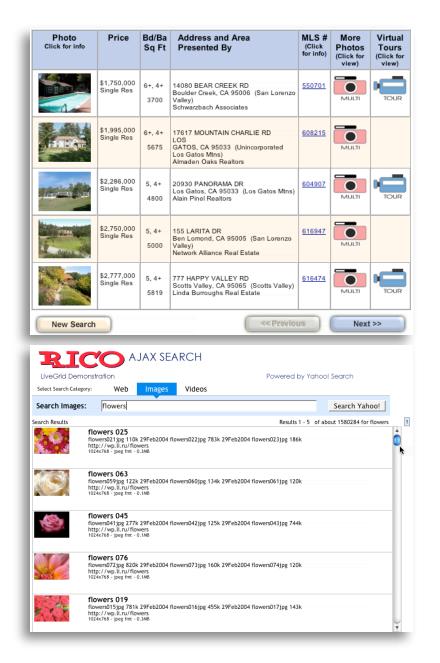


## **Rethink process flows**

It's the user's mental model, not the page model Every page jump is a mental speed bump

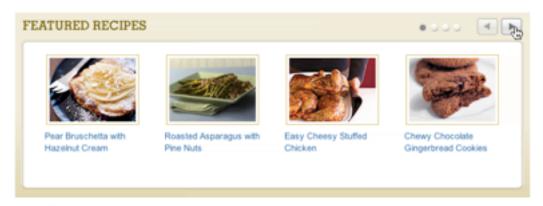






## **Re-think paging**

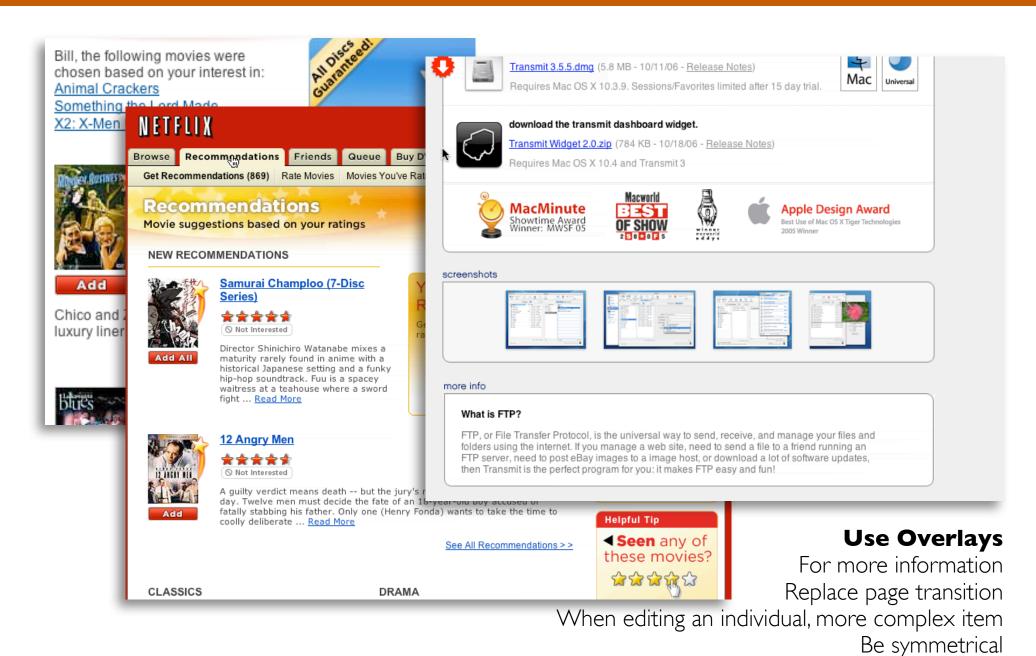
Use scrolling for "owned" data Watch out for dual scroll bar issue Hybrid of paging & scrolling





Lonely elephants baffled by post-Katrina life
Scientists study qorilla habitat
Some birds stay aloft up to 10 years
Inflation soaring high
Fed wants banks to come into compliance
Life after death - is there proof?

Try not to disturb the page







Home



Prints & Gifts



View Cart



Settings



Help ▼

Search My Tag

### Upload Photos

## All My Photos





My Tags

My Friends' Photos

## All My Photos

Slideshow

Create -

Share -

Edit -

Prints & Gifts -

Drag photos into this tray and choose a task above.

Sort by: Date -



Sunset



Underneath



View from the Top







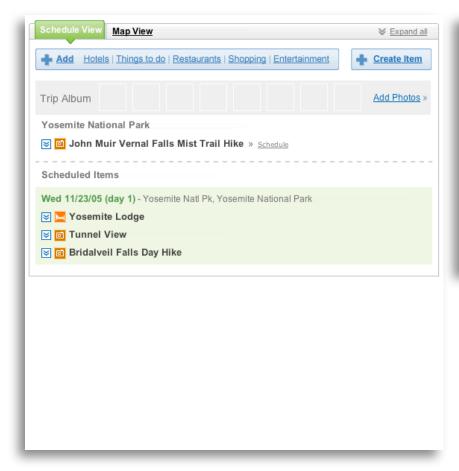
Eiffel Pulley

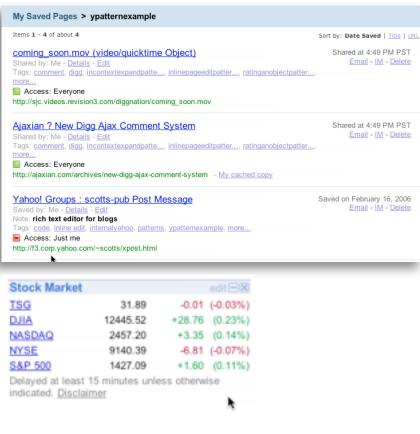


From Second Floor Up



Eiffel Tower

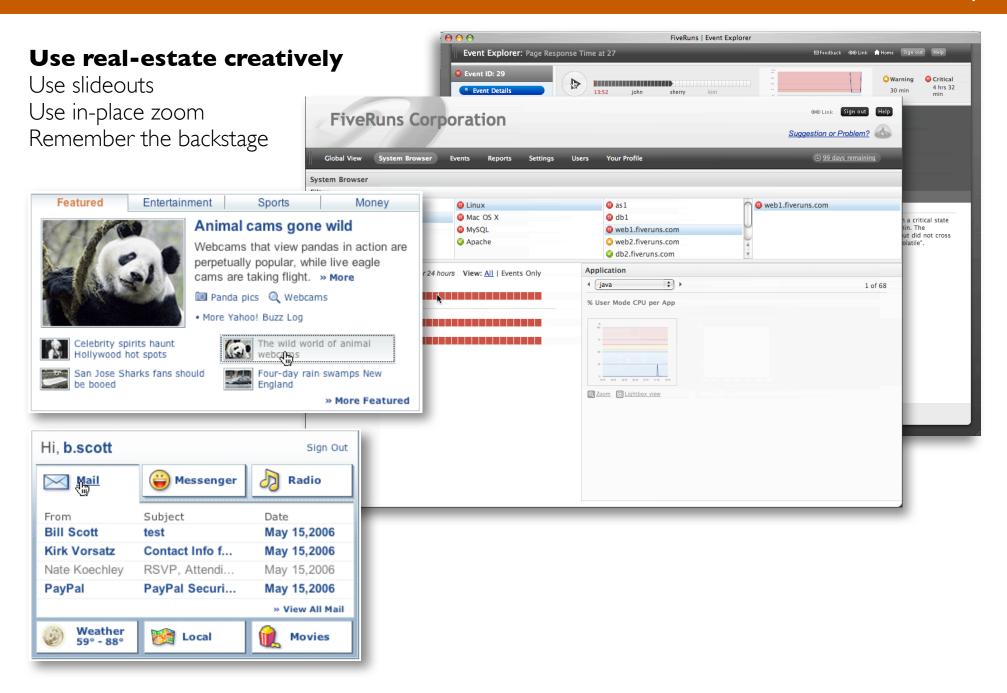




## **Use in-context expands**

For editing part of a collection Need to see surrounding context For managing content modules

## cross borders relunctantly



prefer direct, lightweight, in-page interaction



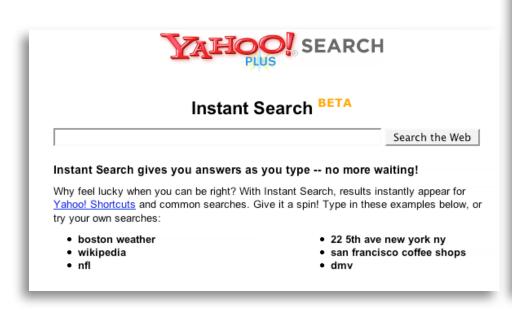
# feedback principles

## principle. give live feedback.

#### pattern. live suggest. pattern. periodic refresh. Find symbol Ask Your Question Get Quote: 1. Enter your question NEWS & COMMENTARY MUTUAL FUNDS & ETFS PERSONAL FINANCE You can ask 5 more questions You have 110 characters to work with. Add details below today. LATEST NEWS [MCD] UBS ups McDonald's price target to \$46 from \$44 2. Add details (optional) MARKET SNAPSHOT No spam, please! When in Dow targets record high doubt, please refer to our Surprise rise in new home sales; Intel rallies on favorable legal ruling community guidelines. By Mark Cotton, MarketWatch Print E-mail Disable live quotes Last Update: 1:04 PM ET Sep 27, 2006 NSS RSS Digg it Del.icio.us You have 1000 characters to work with NEW YORK (MarketWatch) -- U.S. stocks rose Wednesday, with all eyes on the Dow Jones Industrial Average, as gains for Intel Corp., McDonald's and others put the blue-chip index within striking distance of a new high. The Dow industrials (\$INDU: 11,709.25, +39.86, +0.3%) rose as much as 51 points to 11,720.77, just shy of its record high close of 11,722.98. It was last up 39 points at 11,708, with Dow Jones Industrial Aver. pattern. auto complete. 11,707.89 +38.50 +0.33% +2.0% 18 of 30 components contributing to gains. The Nasdaq Composite (\$COMPQ: 2,267.12, +5.78, +0.3%) was up 7 points at 2,268 while the S&P 500 Index (\$SPX: 1,338.76, +2.42, +0.2%) gained 2 points to 1,338. To: Show BCC "Why shouldn't the market be going up?" says Art Hogan, chief market strategist at Jefferies & Co. "You have lower energy prices and low interest rates. You have McDonald's raising its Cc: dividend and some good news for Intel. There's more good news than bad news out there. Hogan said the market was shrugging off a weak durable goods report because it is backward looking and reflects a time Subject: Plain Text when energy prices were much higher, crimping orders for big-ticket items On the broader market for equities, advancers outpaced decliners by 21 to 11 on the New Dow Jones Industrial Avera York Stock Exchange, and by 17 to 11 on the Nasdaq. 11,707.57 +38.18 +0.33% 12,000 10,000 By sector, semiconductors (\$SOX: 461.30, +2.31, +0.5%), networkers (\$NWX: 238.62, +2.00, +0.8%), biotech (\$BTK: 668.91, +8.66, +1.3%) and oil (\$OIX: 585.23, +6.52, +1.1% ) and oil service (\$OSX: 185.03, +3.77, +2.1%) stocks put in solid gains. pattern. busy indicator. Check Mail Flights | Hotels | Cars | Deals | Best Fare Buzz Round-trip One-way ○ Multi-city Q from: darren Stop From Show Nearby Airports Show Nearby Airports Leave Time Time pattern. live previews. 2/15/2006 2/22/2006 Travelers Cabin Find a domain name: Economy -☐ Prefer Nonstop Search www. billsportfolio.com Search multiple sites for hundreds of airlines. (ex. widgetdesigns.com)

## Keep the goal in mind

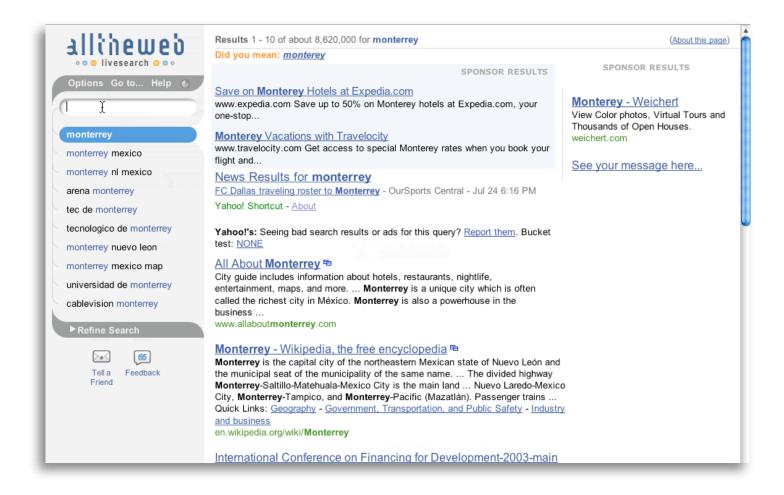
Design for relevancy Is it narrowing or distracting





### Keep the goal in mind

Design for relevancy
Is it narrowing or distracting?
Use feedback to boost confidence
Let the user iterate where possible



## **Shape user perception**

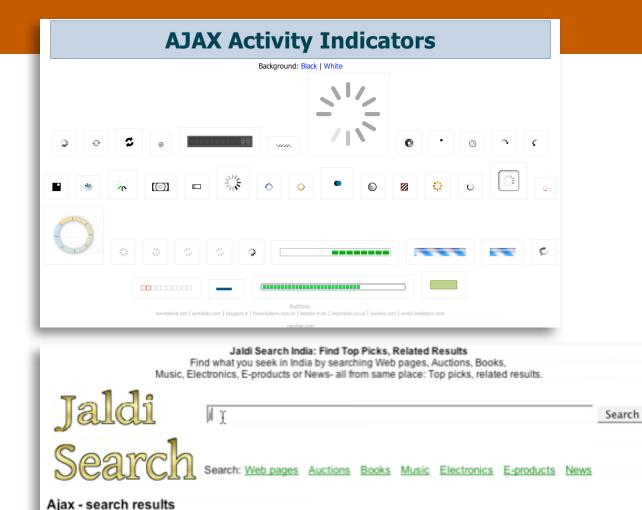
Make time pass faster Make application feel more responsive





### Prevent errors before-hand

Ounce of preventive design worth pound of error-handling
Use live-previews
Look before you leap





#### Keep feedback focused

Use laws of proximity in context feedback Respect feedback bandwidth Reveal relevance just-in-time Avoid side-noise (periphial distractions)

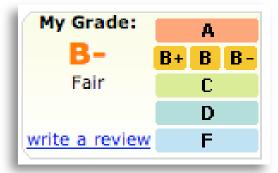


#### Keep feedback focused

Use laws of proximity in context feedback Respect feedback bandwidth Reveal relevance just-in-time Avoid side-noise (periphial distractions) Use nuance

### principle. offer an invitation.

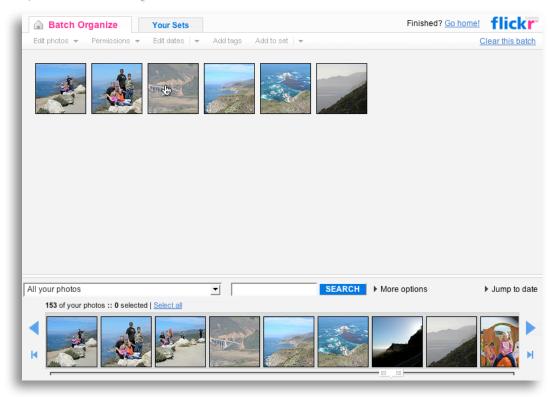
pattern. hover invitation.



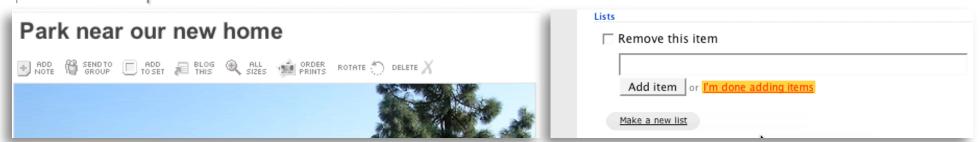
pattern. tour invitation.



pattern. drop invitation.

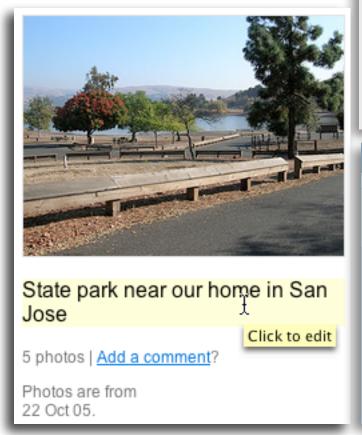


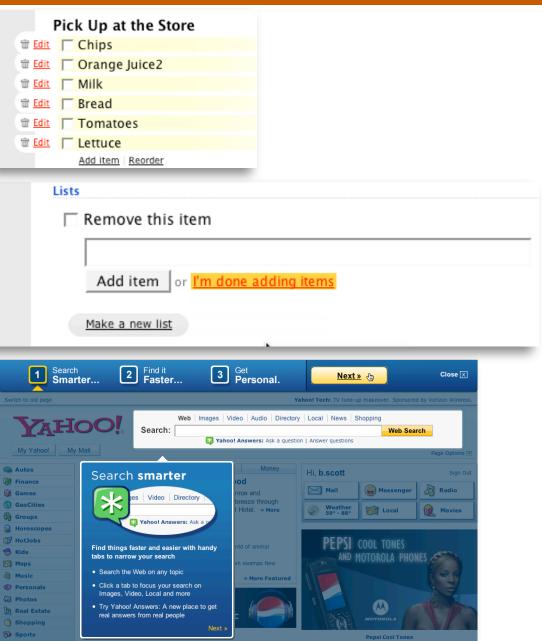
pattern. tooltip invitation + hover invitation + cursor invitation.

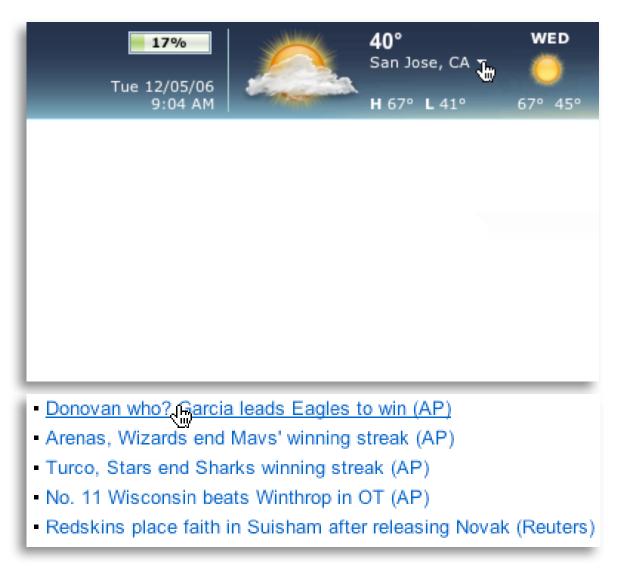


#### **Discoverability**

No easy answer
Use the hover to reveal interaction
Use the familiar to teach the new
Tours are generally a band-aid
Can't flag all interactions



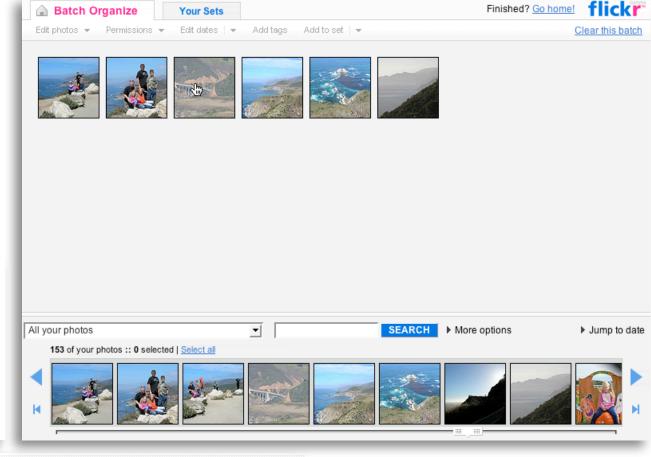


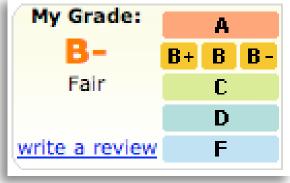


#### Bridge the new with the old

Hyperlinks as actions Reveal with hovers Drop down clues

	Pick Up at the Store
	Milk
	☐ Orange Juice
	☐ Tomatoes
	Lettuce
	☐ Bread
	Chips
	lantzilla pro says:with biscuits and gravy and all the fixins Posted 16 hours ago. ( permalink )
Add yo	ur comment Ĭ
(Some HTM	L is OK.)





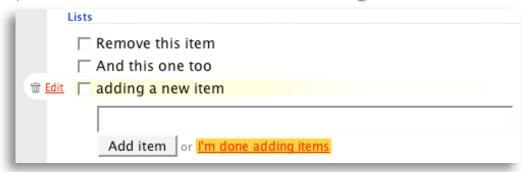
# Park near our new home → ADD SENDTO □ ADD TOSET □ BLOG ← SIZES □ ORDER ROTATE ○ DELETE X SIZES □ PRINTS ROTATE ○ DELETE X

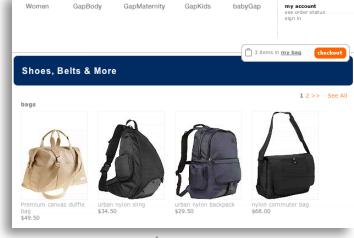
#### Make it inviting

Treat it as a welcome mat Use hover, cursor, tooltip, and page Keep the noise down

## principle. show transitions.

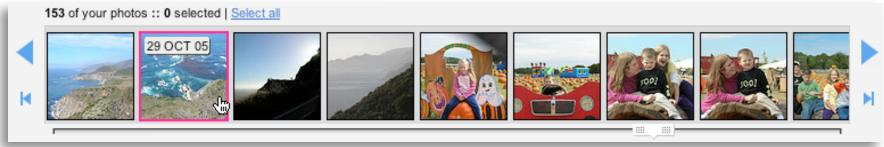
pattern. fade transition + self-healing transition.



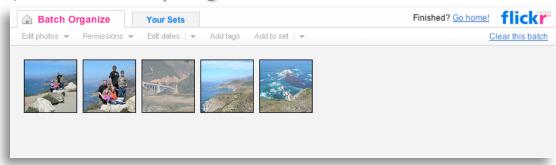


pattern. zoom box.



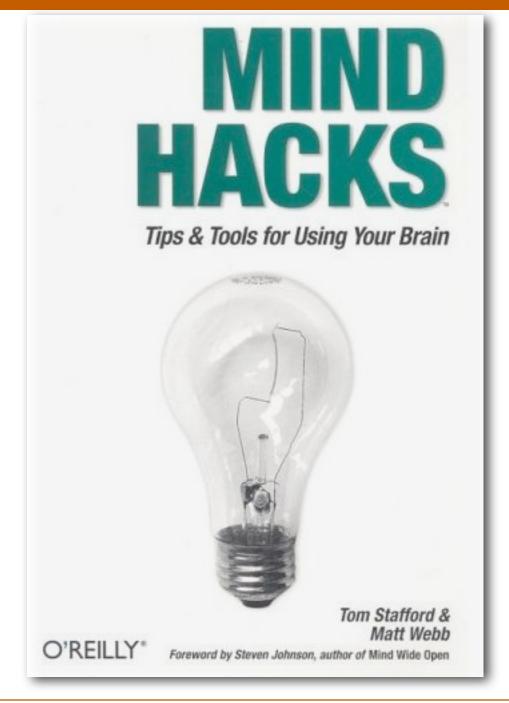


#### pattern. active spotlight.



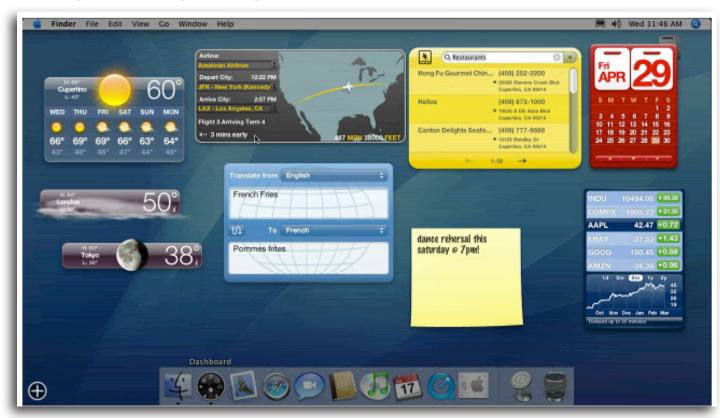
#### Speak to the brain

Understanding attention processing

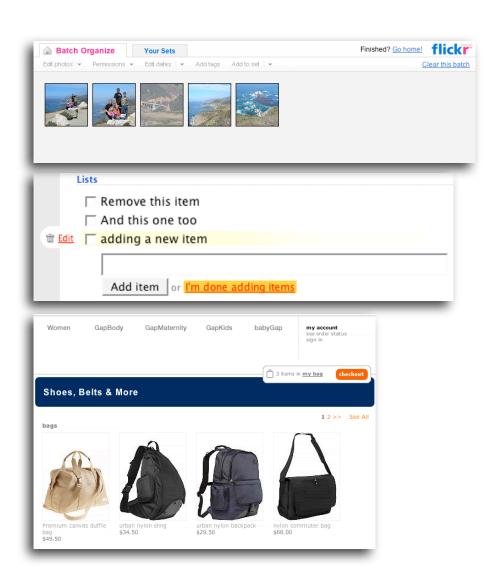


#### Speak to the brain

Understanding attention processing Sending the wrong message

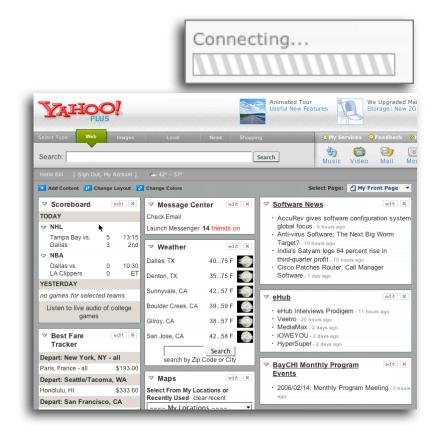




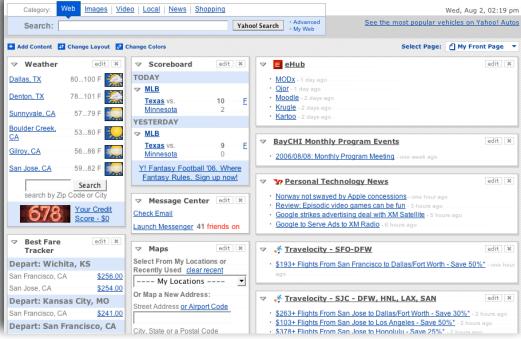


#### What you can communicate...

Speed up time
Slow down interaction
Show state change
Show relationships between objects
Focus attention







#### Keep it sane

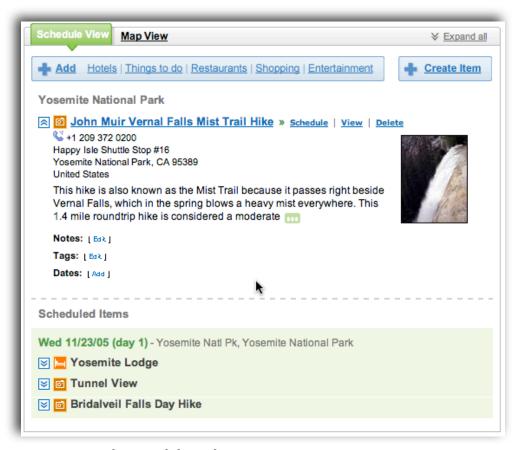
"Cut it in-half" rule of thumb Use "contrast knob" approach Don't overuse

# Provide invitations beforehand, transitions during, and feedback after interaction

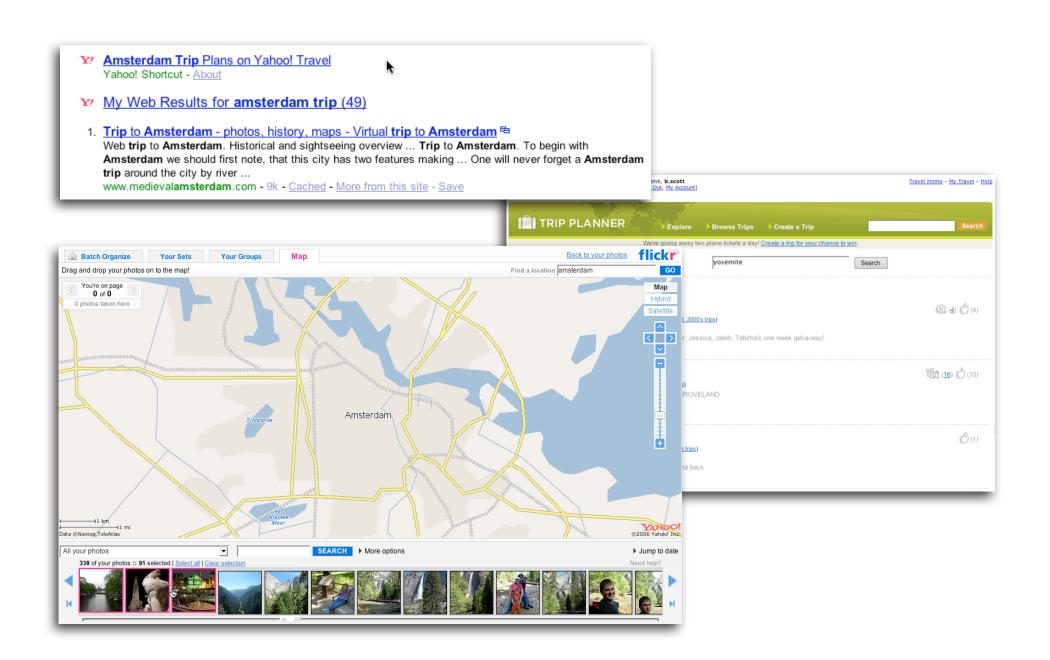


# feedback principles

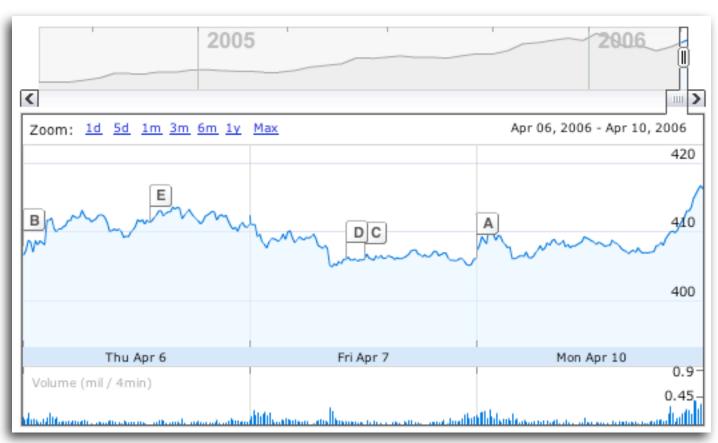
# principle. think in objects.



pattern. shareable object.



# principle. tie information to interactivity.

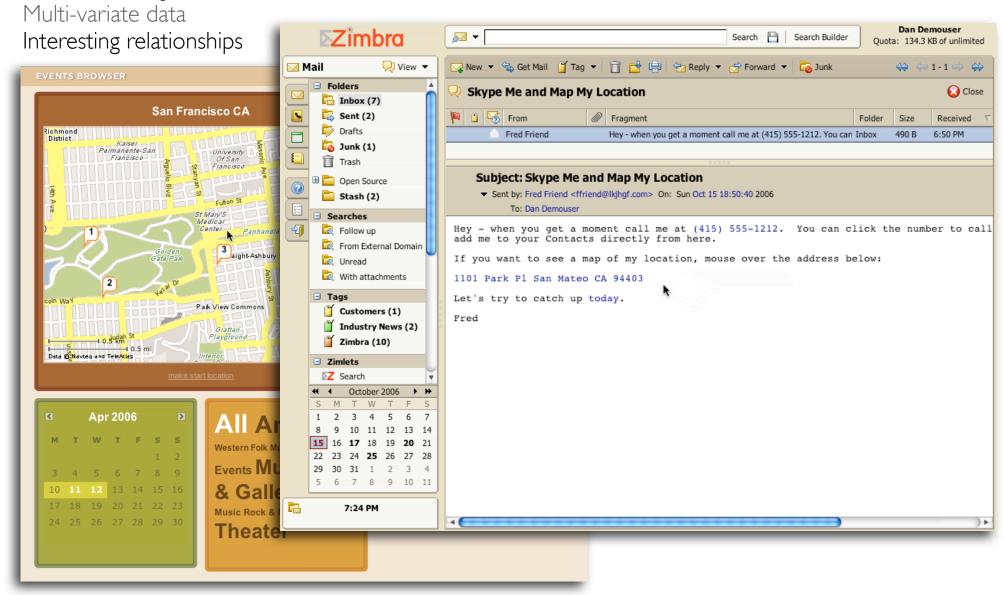


pattern. multi-variate views.

Think "deeper interaction"



Think "deeper interaction"



#### Think "deeper interaction"

Multi-variate data Interesting relationships Just-in-time information



# Think in objects, tie information to interactivity

# key principles for richness



Prefer direct, lightweight, in-page interactions



Provide invitations beforehand, transitions during and feedback after interaction



Think in objects and tie information to interactivity

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