Aesthetics and Visual Design #1
Wednesday, March 28th, 2012
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TA: Kotaro Hara
Remember This?

**Design Exercise**

**Challenge**

We want to enable easily sharing information amongst co-located mobile devices. Most current solutions rely on dialog boxes, cryptic requests, etc. that inhibit local sharing.

Generate at least 10 competing (very different) design concepts.

**Assumptions**

- Your mobile device detects all phones in a nearby range.
- You and the person can perform some action such that both phones recognize this as a “handshake” affirming that a full connection is established.

**Timing**

You have 10 minutes.

[Greenberg, Sketching User Experiences: The Workbook]
#inspiration

Ken Hinckley
Principal Researcher, Microsoft Research
Focuses on novel interactions & Ubiquitous Computing
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Andy Wilson
Inventor of the Microsoft Surface
(We’ll talk about him later in semester)
#inspiration

#inspiration

[Aatma Studio, New iPad3 Concept Features, http://youtu.be/9s2oYUy_cVY]
#inspiration

[Ken Hinckley, Bumping Objects Together as a Semantically Rich Way of Forming Connections, UbiComp 2003]
This lecture is on visual design.

does it matter?
We’ve come to a stage when computer technology needs to be designed as part of everyday culture, so that it’s **beautiful** and **intriguing**, so that it has **emotive** as well as **functional** qualities.

**Bill Moggridge**
Designer, Co-Founder of IDEO
If we only design the function of something, not what it also communicates, we risk our design being misinterpreted. Worse, we waste an opportunity to enhance everyday life.

Bill Moggridge
Designer, Co-Founder of IDEO

[Moggridge, 2006]
what is aesthetics?

The philosophical study of beauty and taste.

In particular, the examination of what makes something beautiful, sublime, ugly, disgusting, cute, fun

[Prof. Kimiko Ryokai, Interface Aesthetics, 2008]
NATURAL BEAUTY

[http://syntheticaesthetics1.wordpress.com/]
Write-down the most beautiful top three interactive systems you have ever used.
Aesthetics in HCI
It’s not surprising that attractive things are preferred over ugly ones, but are they also perceived as working better?
Kurosu & Kashimura, Apparent Usability vs. Inherent Usability, CHI'95
Studied different layouts of controls for ATMS. All versions identical in function and number of buttons, except for level of “attractiveness.”

The attractive screens performed better!
Clearly, aesthetic preferences are culturally dependent. [Moreover], Japanese culture is known for its aesthetic tradition.

Noam Tractinsky
Professor at Ben-Gurion University, Israel

[Quote from Norman, Emotional Design, 2004]
Noam received the ATM layouts from Kurosu and Kashimura. Translated them from Japanese to Hebrew, and reran a similar experiment.

He replicated the Japanese findings and, in fact, found a stronger correlation between usability and aesthetics.

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Professor at Ben-Gurion University, Israel

[From Norman, Emotional Design, 2004]
Follow-up Experiment!

[Ben-Bassat, Economic and Subjective Measures of the Perceived Value of Aesthetics and Usability, ACM Trans CHI’06]
Follow-up Experiment!

Within subject design, varied **usability** and **aesthetics** of a phonebook application
Experimental Design

Within-subject factors

- **Aesthetics**
  - low
  - high

- **Usability**
  - low
  - mid
  - high

[Ben-Bassat, *Economic and Subjective Measures of the Perceived Value of Aesthetics and Usability*, ACM Trans CHI’06]
Varying Aesthetics
As determined from pilot studies

“low aesthetics” system

“high aesthetics” system

[Ben-Bassat, Economic and Subjective Measures of the Perceived Value of Aesthetics and Usability, ACM Trans CHI’06]
The more beautiful, the higher the perceived usability.
More aesthetic systems were perceived to be slightly more usable.
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More aesthetic systems were perceived to be slightly more usable.
Usable things appear more beautiful. High usability systems were always judged as more aesthetic.

That is, perceived usability and aesthetics are positively correlated.
Fast judgment on aesthetics and usability. Importance of first impressions in shaping users’ attitudes towards interactive systems.

[Ben-Bassat, Economic and Subjective Measures of the Perceived Value of Aesthetics and Usability, ACM Trans CHI’06]
No positive aesthetics effect on performance. Performance with low aesthetic systems was slightly better than with high aesthetic systems.
Limitations...
- Only one system
- Was it “beautiful?”
- Participants: 150 engineering students
Visual attractiveness of a web site contributed to feelings of **usefulness**, **enjoyment**, and **ease-of-use**.
Figure 1. Initial selection of skins and mean beauty ratings (standard deviation) from pretest.
No substantial relation between actual or perceived usability and beauty was found.

[Hassenzahl, *The Interplay of Beauty, Goodness, and Usability in Interactive Products*, Human-Comp. Interaction, 2004]
Interested in learning more about this topic?

Why we love (or hate) everyday things
Interested in learning more about this topic?

DONALD A. NORMAN
AUTHOR OF THE DESIGN OF EVERYDAY THINGS

EMOTIONAL DESIGN
Pre-attentive (Static) Visual Features

- Orientation
- Length/Width
- Size
- Closure
- Curvature
- Hue
- Intersection
- 3D Depth Cues

[This list is not comprehensive; see Christopher Healey, http://www.csc.ncsu.edu/faculty/healey/PP/]
**Preattentive (Static) Visual Features**

- Density
- Number, Estimation
- Terminators
- Lighting Direction
- 3D Orientation
- Artistic Properties

[This list is not comprehensive; see Christopher Healey, http://www.csc.ncsu.edu/faculty/healey/PP/]
Gestalt psychology
Gestalt means form or configuration in German.

The operational principle of gestalt psychology is that the **brain is holistic and parallel** (e.g., the human eye sees objects in entirety before perceiving their parts)
Gestalt Properties

Emergence

Reification

Multistability

Invariance

Emergence
Reification
Multistability

Multistability

Invariance

Are the objects here all the same?
Invariance

Are the objects in A the same as B?
This is awesome, but what does *Gestalt* have to do with *Human-Computer Interaction* and *visual design*?
Gestalt-Related Design Principles

1. Figure / Ground
2. Proximity
3. Similarity
4. Connectedness
5. Continuity
6. Closure
7. Common Fate
8. Transparency