Announcements

HW 1 Grades: Posted on bSpace
http://bspace.berkeley.edu

Most students did very well.

Make sure your videos communicate what you’ve done. Missing/bad audio?
Announcements

CHI Studies Coming Up:
Expect announcements about CHI studies from EECS/iSchool students on Piazza over the next few weeks. Help them out if you can.
HW2

Implement gesture-based menu navigation with the Kinect.

Submit code and demo video.

Due: Next week Friday, 9/23, 5pm
HW2 - Examples

Hand as 2D cursor; dwell to select: http://youtu.be/NQUwZmkaHvA

Hand as 1D cursor, swipe to select: http://youtu.be/weEUvXMRA3g

Swipe to navigate, push to select: http://youtu.be/qVL_-47sFv0?t=24s
We’ll end class 15 min early.

Choose partners, then come to 533 Soda to check out a Kinect. (Pairs first.)

Fill out an equipment checkout form when you get your Kinect.
Seminal Ideas
(aka, the greatest hits from the 60s to the 90s)
Brad A. Myers.
A Brief History of Human Computer Interaction Technology.
www.cs.cmu.edu/~amulet/papers/uhistory.tr.html
Ivan Sutherland, Sketchpad, MIT, 1963/64
Fig. 1. General appearance of the Light Handle

Fig. 2. Clockwise rotation near left-hand edge causes rapid increase in value

W. Newman
Light Handle
1967/68
DC Smith
Pygmalion
1975
This is not sustainable in the long term. As a rule, companies will eventually have to
release truly new products, or see their business shrink to the point where it is likely no
longer of interest to investors, and perhaps not even viable.

To understand why, let’s narrow our discussion and focus on software companies.

With software products, each n+1 release must contain sufficient incremental
improvement to contribute to two objectives. First, it should help motivate those who
have not already purchased the product to do so. Second, and perhaps more

The problem with relying on n+1 products is that the cost of achieving an improvement
that is greater than or equal to this Value. The threshold increases with each release.

Furthermore, my experience suggests that the higher the release number, n, the higher
1. bananas
2. carrots
3. lettuce
4. beans
5. cans
6. cereals
7. cold locker
8. frozen locker
9. miscellaneous
10. shoe store
11. hardware
12. art supply
13. drug store
14. library
Brad A. Myers.
A Brief History of Human Computer Interaction Technology.
[www.cs.cmu.edu/~amulet/papers/uirhistory.tr.html](http://www.cs.cmu.edu/~amulet/papers/uirhistory.tr.html)
<table>
<thead>
<tr>
<th>Demo Videos</th>
</tr>
</thead>
</table>

1964  SketchPad (Sutherland)  
http://www.youtube.com/watch?v=mOZqRJzE8xg

1968  NLS (Engelbart)  
engelbart.mov

1981  Xerox Star (PARC)  
xerox_star.mov
20 Years of Ubiquitous Computing*
Back in the early nineties...

World Wide Web (Berners-Lee, 1991)
Linux introduced (Torvalds, 1991)
Windows at v3.0 (1990)
Intel 80486 (32 bit, 20-50 MHz; 1989)
1.6M US cell phone subscribers (Bell&Dourish)

http://www.computerhope.com/history/19902000.htm
http://www.computerhistory.org/timeline/
Nintendo
PowerGlove
1989
http://www.internet.us/graphics/powerglove.jpg
“[A]ll the data typically needed in business, school or any endeavor should be instantly accessible from a desktop personal computer.”

John Markoff, NY Times, Nov 12, 1990 about Bill Gates’ COMDEX Keynote
Motivation 1: Info Overload

“Most important, ubiquitous computers will help overcome information overload. There is more information available at our fingertips during a walk in the woods than in any computer systems, yet people find a walk among trees relaxing and computers frustrating.”
Motivation 2: Tech Push

“For every ant in the world today, there are 100 transistors.”
- Gordon Moore, 2003
“Ubiquitous computing names the third wave in computing, just now beginning. First were mainframes, each shared by lots of people. Now we are in the personal computing era, person and machine staring uneasily at each other across the desktop. Next comes ubiquitous computing,[...]”
Mark Weiser (1952-1999)

Faculty, UMD (1979-87)

Head, Xerox PARC Computer Science Lab (1987-94)

CTO, Xerox PARC (1994-99)
What *Ubi-Comp* Ain't.

From: Rich Gold, *The Plenitude*
Ubiquitous Computing is computation that is embedded invisibly throughout the objects of everyday life. It is tacit and helpful.

The five properties of Ubiquitous Computing.

From: Rich Gold, The Plenitude
Computing by the Inch, Foot, Yard

Many computing devices.

At each scale, devices are self-contained: they have input, computation, and output.

Applications and documents migrate across devices: everything is networked.
Sensing & Inference

Interaction is no longer explicitly conversational, but becomes implicit based on sensing the user and the environment.
Ramifications

Meeting destroying email.

Big brother.

From: Rich Gold, The Plenitude
Impact on Computer Science

As a cult, Ubi-Comp was overly successful. There are now university departments devoted to it. There are corporate research labs delving into its mysteries and product potentials. There are Ubi-devices on every desk top, in many purses, and hanging off of way too many belts. There are young graduates who can’t imagine that this wasn’t always the way of computer science. It has gone from an interesting, challenging, philosophical debate about the nature of reality, to corporate advertising in the front of WiReD.

From: Rich Gold, The Plenitude