CSE118: APPLICATIONS IN UBICOMP
PEN AND PAPER INTERFACES

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http://hci.ucsd.edu/weibel
PaperPoint Presentation Tool

- Mobile presentation tool
- Non-linear presentations
- Paper-based real-time annotations
- Digital whiteboard
- Multi-pen support
  - brainstorming
Computer Science

Cognitive Science

Social Science

HCI Research on Pen, Paper and Digital

Interaction Design

Communication
Research Question

How do we best enable access to information in the right way, at the right time and for the right user and situation?
Methods

- Design and engineering of infrastructure, models and tools to support physical/digital interaction
- User centered and data-driven design and developing of hybrid applications
- Situated deployment in the wild
- Observation and analysis of the consequences of the introduced technology
The Myth of the Paperless Office...

For decades, people predicted the office of the future as a paperless office.

“I don't know how much hard copy printed paper I'll want in this world.”
George E. Pake, heads of Xerox PARC, 1975

“The use of paper should be declining by 1980.”
Vincent E. Giuliano of Arthur D. Little, 1975

Dick Brass, vice-president of Technology Development at Microsoft Research, 2001
Integrate Paper and Digital Technologies

"Rather than pursue the ideal of the paperless office, we should work toward a future in which paper and electronic document tools work in concert and organizational processes make optimal use of both."

Abigail Sellen and Richard Harper,
The Myth of the Paperless Office, 2002
Anoto Technologies

Virtual paper space of 60 million km²

Pen manufacturers
- Sony Ericsson
- Logitech
- Nokia
- Maxell
- Livescribe
Anoto Pattern
Interactive Paper

APPLICATIONS

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HIPerFace / HIPerPaper
HIPerSpace Wall

31.8 foot by 7.5 foot tall wall display
70 tiled 30” Dell LCD displays
35,840 x 8,000 pixels (286,720,000 pixels total)
18 Dell XPS 710/720 (Intel quad-core CPUs + dual nVIDIA FX5600 GPUs)
1 head node and 6 streaming nodes
A total of 100 processor cores and 38 GPUs
Interacting with the Wall

- Gyroscopic Mouse
- Nintendo Wii Controller
- PlayStation 3 Controller
- iPhone / iPod Touch / iPad, Android
- SpaceMouse
- 3D Tracking Systems
- Multi-touch tables

Best Device?
- Task-dependent?
- User-dependent?
- Collaboration?
HIPerFace

- Multichannel Architecture
- Multimodal/Composite Interactions
• Paper-based Interface to the HIPerSpace Wall
LG. Cowan, N. Weibel, LR. Pina, WG. Griswold and JD. Hollan, Ubiquitous Sketching for Social Media, Proceedings MobileHCI 2011
System Overview
User Interfaces

Phone Buttons

Paper Buttons

Save  Clear  Load

Email  Twitter  Facebook
SketchBook, SketchTweet, Email
“That is how my brain is functioning right now after 6 weeks with a newborn baby.”
To whom it may concern,

Calculus can officially kick my ass.

That is all.

- Night.

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Every day, I feel compelled to take notes, and to be a good student in general. Sadly, about an hour into the class, I invariably start falling asleep. Aside from a subsequent detriment to my command of the English language, it takes ALL my effort to stay awake. I try to keep my eyes open as wide as possible, which must look ridiculous.

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Sometimes, for my early morning classes, I'm not really sure whether it's all a dream or not...

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I'm not sure what this says about my perception of reality...

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As wide as you can, ey?

August 18 at 8:33am • Like • Flag

shh...

Thursday at 3:45pm • Like • Flag
Giraffe
by Catherine age 5
7/25/10

Concept
'Forest Goddess'
Necklace
Real pine cones, birch
Cattails, and acorns
Varnished natural slate
Green gemstone beads, Jade
Gn Garnet, Del wire wrapped
in loose organic style

Bravo, Catherine! I love this! I wanna
draw, now! Wahhhhh!!! I wanna drawwwww!! Too funn! ♥♥♥♥♥

Studio Regency

Lg red wire wrapped
Sm red wire wrapped
Sm red wire wrapped
Nam red wire wrapped
Sm red wire wrapped
Nam red wire wrapped
Lg red wire wrapped

oh Grandma Just loves your pitcherrr;

I think maybe it's b/c they learned those recently so it's
more exciting LOL

Why does she

Added July 26 - Comment - Like
July 26 at 5:58pm
July 26 at 6:17pm
July 26 at 6:18pm
July 26 at 6:29pm
July 26 at 6:34pm
July 26 at 6:58pm
Packing Techniques

Bomb

Totally Worth It!

Packing Theory

\[ \text{Zombie Apocalypse} = \left( \text{Brats} + \text{Dogs} \right) + \sqrt{\text{Brains}} \]

Bad Idea

I always forgot the zombie apocalypse variable in my calculations... good to see you included it here.

August 3 at 4:31pm | Like · Flag

only whaen shark week is missed

August 3 at 4:32pm | Like · Flag
Write-n-Speak
The Write-n-Speak System

Two modes: Client / Therapist

Therapist Mode:

• Draw or select a region
• Define the pen’s action
• Play
• Record
• Recognize HWR
• Save the region
Tap & Play
THANK YOU

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