dt +UX DESIGN THINKING FOR USER EXPERIENCE DESIGN + PROTOTYPING + EVALUATION

Designing the Future:
Early & Future Visions of HCI

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2018

October 24, 2018

Interface Hall of Shame or Fame?

Click here to put book away

- From IBM's Real Series
  – prompt
  – button

Interface Hall of Shame!

Click here to put book away

- From IBM's Real Series
  – prompt
  – button

- Black on black???
  – cool!
  – but you can't see it
  – "click here" shouldn't be necessary
    • like a door that has a sign telling you to push

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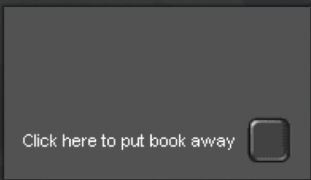
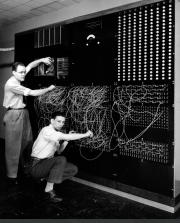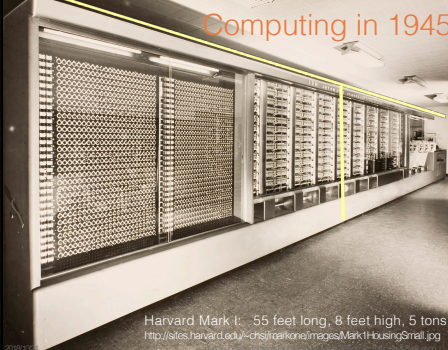Autumn 2018

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Outline

- Computing in 1945
- Vannevar Bush & "As We May Think"
- Doug Engelbart & Augmenting Intellect
- SketchPad, Dynabook & The Xerox Star
- Future Visions of HCI
- Administrivia
- Break
- Special Guest: Prof. Ge Wang

Computing in 1945

Harvard Mark I: 55 feet long, 8 feet high, 5 tons
http://sites.harvard.edu/~chsi/markone/images/Mark1HousingSmall.jpg

Computing in 1945

ENIAC
First Electronic, General Purpose Computer

http://www.phillyvoice.com/70-years-ago-six-philly-women-eniac-digital-computer-programmers/

Vannevar Bush Kicked Off Big Science

- MIT faculty member
- Coordinated WWII scientific effort
- Social contract for science
  - federal government funds universities
  - universities do basic research
  - helps economy & national defense

- "As We May Think", the Atlantic Monthly, July 1945
- Futuristic inventions / trends ?
  - wearable cameras to record life
  - encyclopedia for a nickel
  - automatic transcripts of speech
  - trails of discovery
  - capture of nerve impulses
  - Memex

http://www.eecs.mit.edu/AY95-96/events/bush/

Memex

Picture from http://www.dynamicdiagrams.com/design/memex/model.html#bowling
Demo at http://www.dynamicdiagrams.com/case_studies/mf_memex.html

Was he right? Memex never built… or was it?

Memex #001 by Trevor Smith, 2013
http://trevor.smith.name/memex

Predicting → Inventing the Future
Computers weren't always like this…

Computers don't have to be like this!

Computing in 1965

IBM System/360
Bundesarchiv B 145 Bild-F038812-0014, Wolfsburg, VW Autowerk by
Bundesarchiv, B 145 Bild-F038812-0014 / Schaack, Lothar / CC-BY-SA
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Computing in 1965

IBM System/360

Douglas Engelbart (Turing Award 1997)
Augmenting Human Intellect

- Stanford Research Institute (SRI) in the 1960s
- 1962 Paper "Conceptual Model for Augmenting Human Intellect"
  – complexity of problems increasing → need new tools to solve
- Demoed NLS (oNLine System), 1968 Fall Joint Computer Conf. (SF)
- Known for?
  – mouse

Engelbart's Crusade

*"The **complexity** of a lot of the problems [in the world] and the means for solving them are just getting to be too much. The **time available** for solving a lot of the problems is getting **shorter and shorter**. So the urgency goes up… The complexity/urgency factor had transcended what humans can cope with. I suddenly flashed that if you could do something to **improve human capability** to cope with that, then you'd really contribute something basic."*

     – Douglas Engelbart (1996)

Augmenting Human Intellect
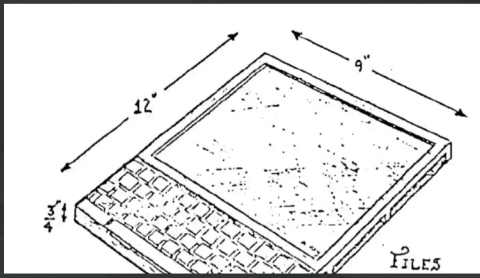*The NLS Hardware*

Augmenting Human Intellect
The NLS Software
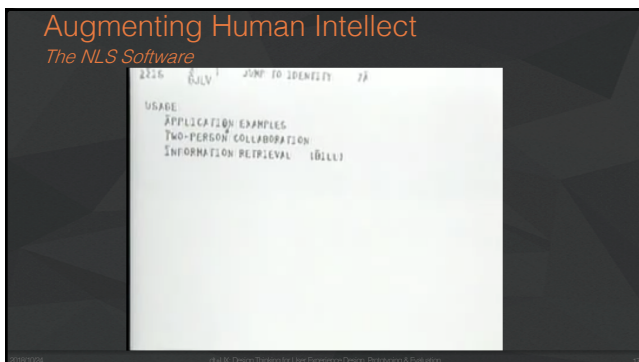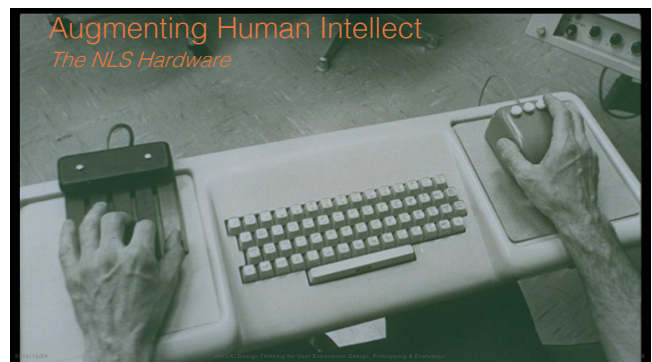
Augmenting Human Intellect: Firsts!

- First mouse, and ?

- First 2D editing & windows

- First hypertext

- First word processing

- First document version control

- First groupware (shared screen teleconferencing)

- First context-sensitive help

- First distributed client-server

- Many, many more!

3

Chorded Keyboard

One-Handed,
Chord Keyset:

Code for "a" →

b
c
d
e
f
g
h
x
y
z

Tricycles & Bicycles: Specialized Tools

Tricycles   vs.   Bicycles

"If ease of use was the only valid criterion, people would stick to tricycles and never try bicycles." – Douglas Engelbart

Engelbart's Influences

Douglas C. Engelbart
Stanford Research Institute
Menlo Park, California

http://web.stanford.edu/dept/SUL/library/extra4/sloan/mousesite/EngelbartPapers/LetterToVBush.html

May 24, 1962

Dr. Vannevar Bush
Professor Emeritus
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dr. Bush:

I wish permission from you to extract lengthy and definitely acknowledged quotes from your article, "As We May Think," that appeared in The Atlantic Monthly, July, 1945. These quotes would appear in a report that I am writing for the Air Force Office of Scientific Research, and I am sending a parallel request to The Atlantic Monthly.

More on Englebart

Boostrapping, Thierry Bardini, 2000

"Program on Human Effictiveness",
Douglas C. Engelbart, 1962

Tools for Thought, Ch. 9 "The Loneliness of a Long-Distance Thinker", Howard Rheingold, 2000

MouseSite (video clips/papers)
http://web.stanford.edu/dept/SUL/library/extra4/sloan/MouseSite/Archive.html

SketchPad – Sutherland (1963)

VR – Sutherland (1965)

Dynabook – Kay (1974)

Xerox Star – 1st Commercial GUI (1981)

"The best way to predict the future is to invent it"

Alan Kay

?

The Future

Minority Report (2002)

Microsoft Productivity Future Vision 2019

Spike Jonze's Her (2013)

Next Time

- Lecture
  - Visual Information Design

- Watch Scott Klemmer's HCIOnline lectures
  - 6.1 Visual Design (7:37)
  - 6.2 Typography (10:47)
  - 6.3 Grids & Alignment (17:33)

- Studio
  - Low-fi prototypes results
    - what did you do? what did you learn?
  - Start sketching out medium-fi storyboards based on test results

Administrivia

- Keep up w/ readings/HW on class website
  - http://hci.stanford.edu/cs147
  - remember midterm based on lecture, reading & project HW

- Questions about Low-fi Prototype assignment?

TEAM BREAK

Special Guest
Prof. Ge Wang
Music/CS