

# Designing the Future: *Early & Future Visions of HCI*

Prof. James A. Landay  
Computer Science Department  
Stanford University

Autumn 2025  
November 5, 2025

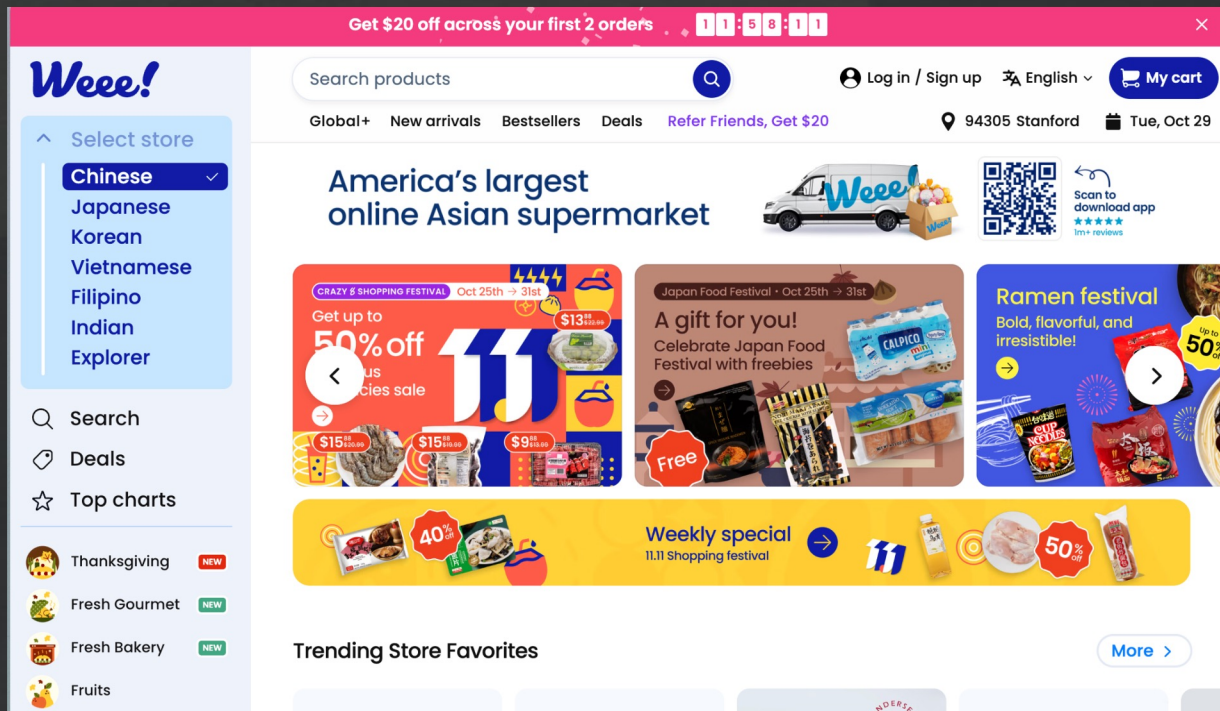
# Hall of Fame or Shame?



The screenshot displays the Weee! mobile application interface. At the top, a pink banner offers '\$20 off across your first 2 orders' with a timer showing 11:58:11. Below this is a search bar and navigation links for 'Log in / Sign up', 'English', and 'My cart'. The main content area features a 'Select store' dropdown menu with options like 'Chinese', 'Japanese', and 'Korean'. The central banner reads 'America's largest online Asian supermarket' and includes a QR code to download the app. Three promotional cards are visible: 'CRAZY & SHOPPING FESTIVAL' with '50% off' on various items, 'Japan Food Festival' with 'A gift for you!', and 'Ramen festival' with 'Up to 50% off'. A 'Weekly special' banner for '11.11 Shopping festival' offers '40% off' and '50% off'. The bottom section is titled 'Trending Store Favorites' with a 'More >' button.

Weee!

# Hall of Shame!

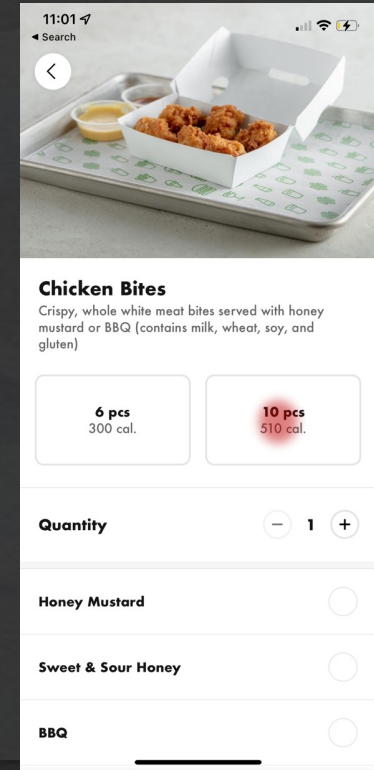
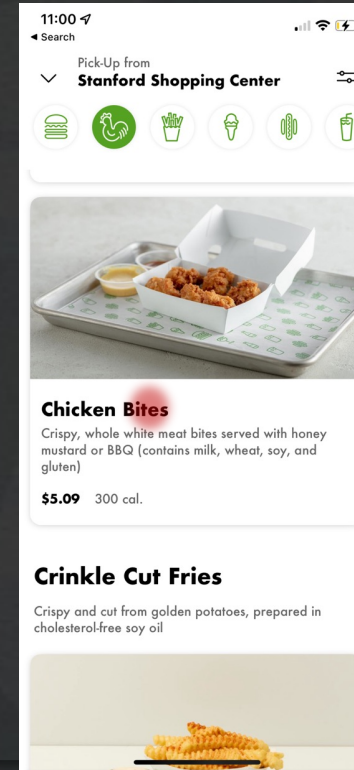
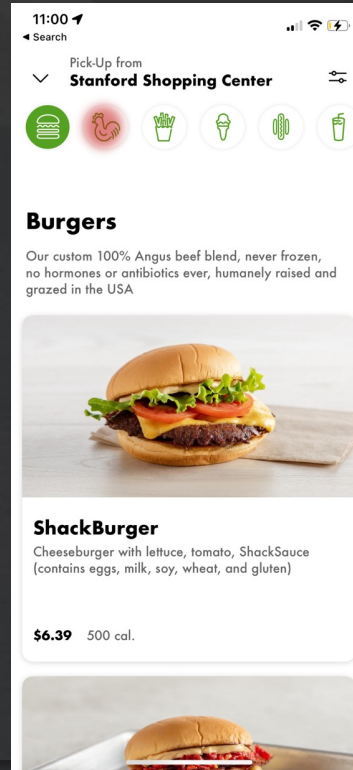
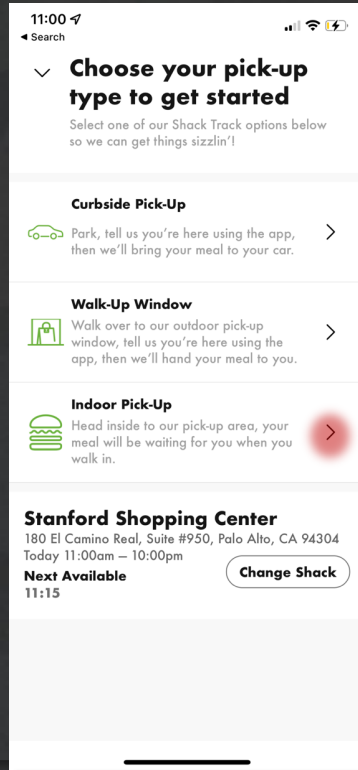
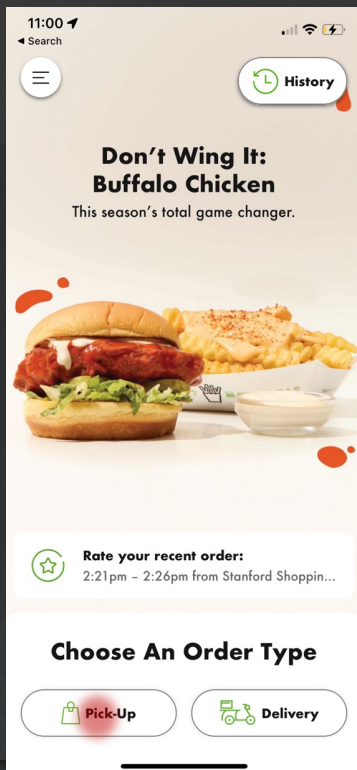


- Cluttered, competing promotional banners & colors
- Too many font sizes and styles
- Too many different options on the sidebar
- Too many calls to action
- Arrow buttons block content (now fixed)

# Hall of Fame or Shame?



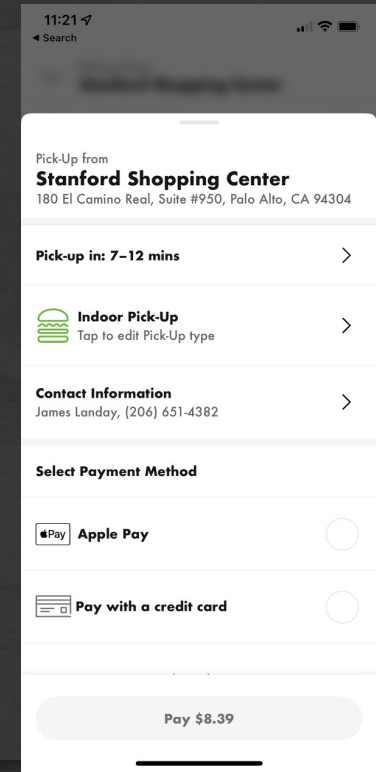
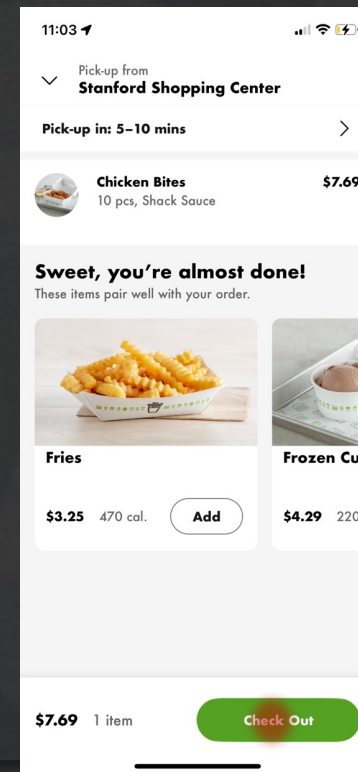
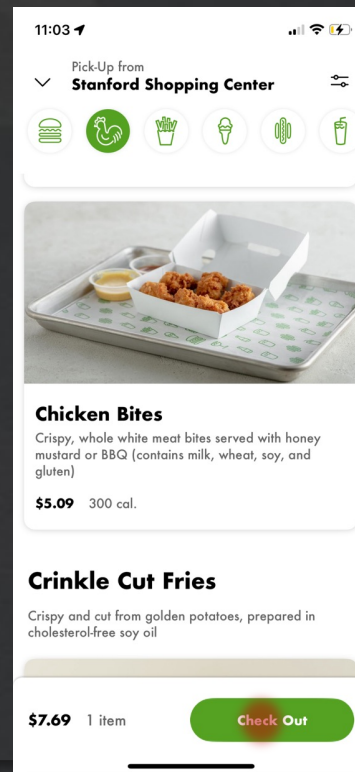
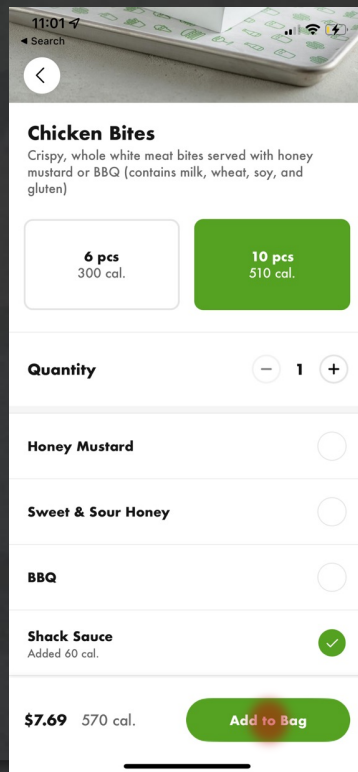
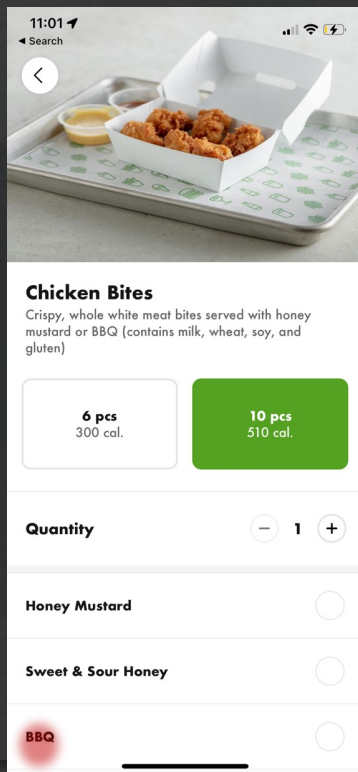
## Shake Shack iPhone App



# Hall of Fame or Shame?



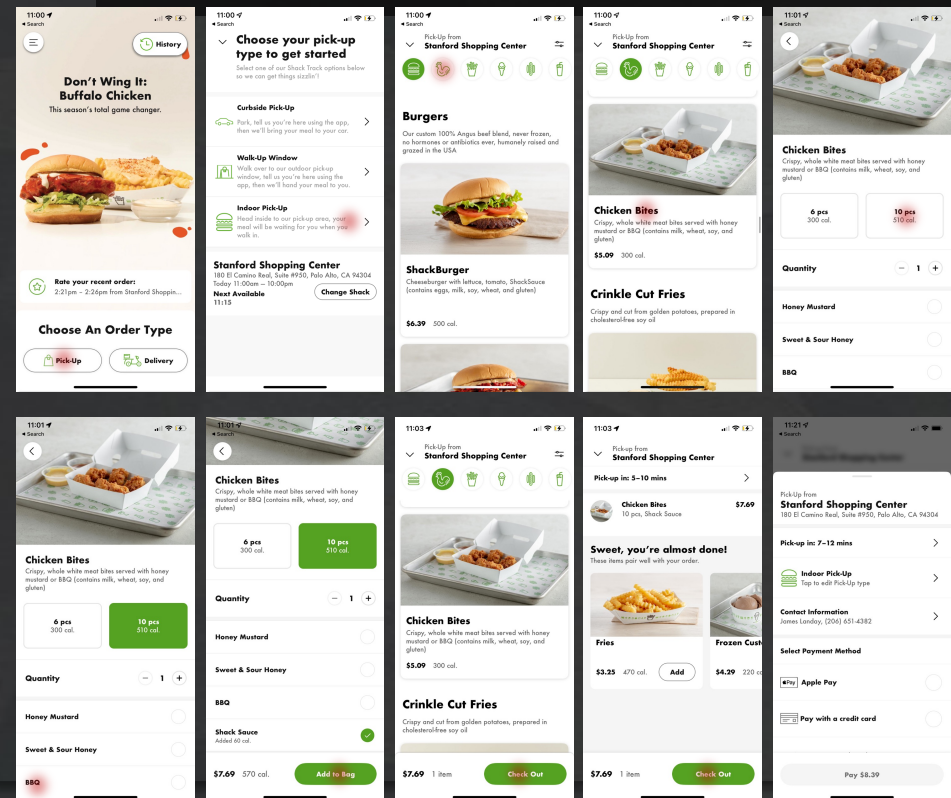
## Shake Shack iPhone App



# Hall of Fame or Shame?



## Shake Shack iPhone App



# Hall of Fame!



## Shake Shack iPhone App

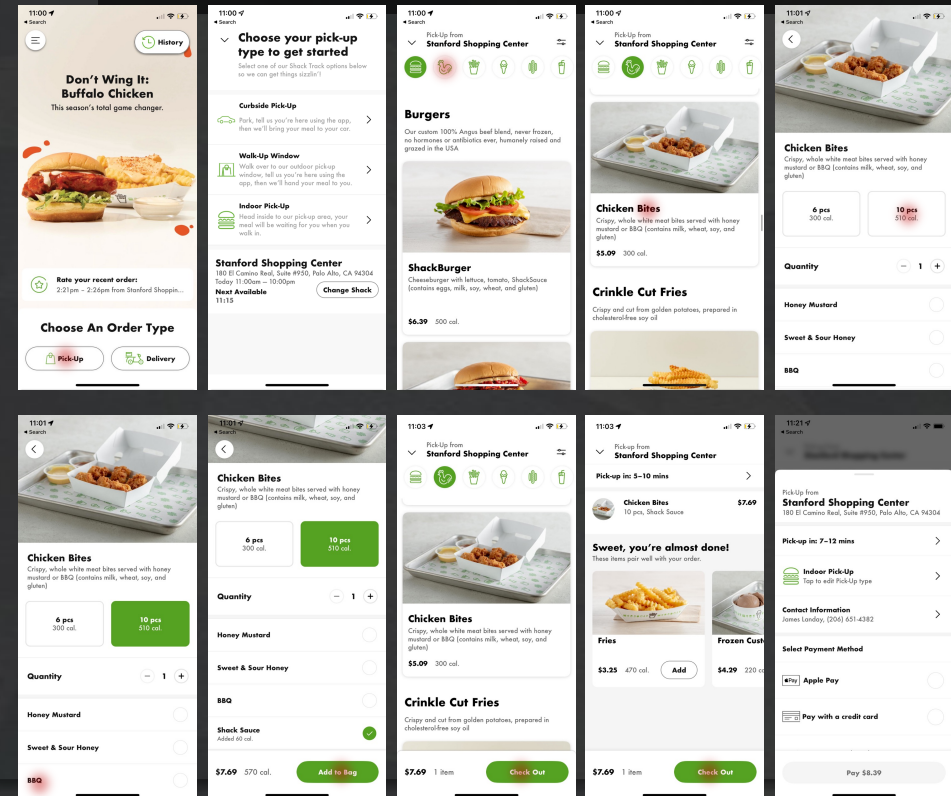
Aesthetic images of their food

Whitespace shows what is important

Simple icons are easy to figure out

Only one key accent color (green)

- for selection & key next step ("Add")



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# Outline

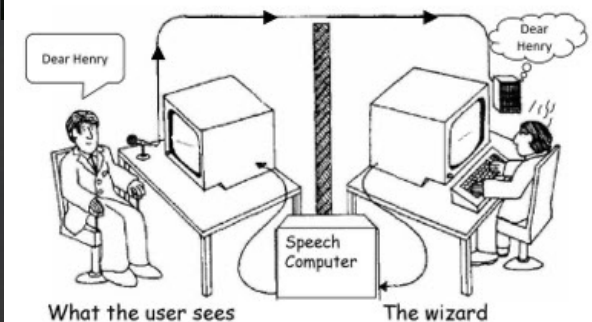
- Wizard of Oz Technique
- Computing in 1945
- Vannevar Bush & “As We May Think”
- Doug Engelbart & Augmenting Intellect
- SketchPad, Dynabook & The Xerox Star
- 2025 CS147 Film Festival Awards
- Team Break
- Future Visions of HCI

# Wizard of Oz Technique

- Faking the interaction. Comes from?
  - the film “The Wizard of Oz”
    - “the man behind the curtain”
- Long tradition in computer industry
  - e.g., prototype of a PC w/ a DEC VAX (minicomputer) behind the curtain
  - much more important for hard to implement features



Wizard of Oz testing – The listening type writer IBM 1984



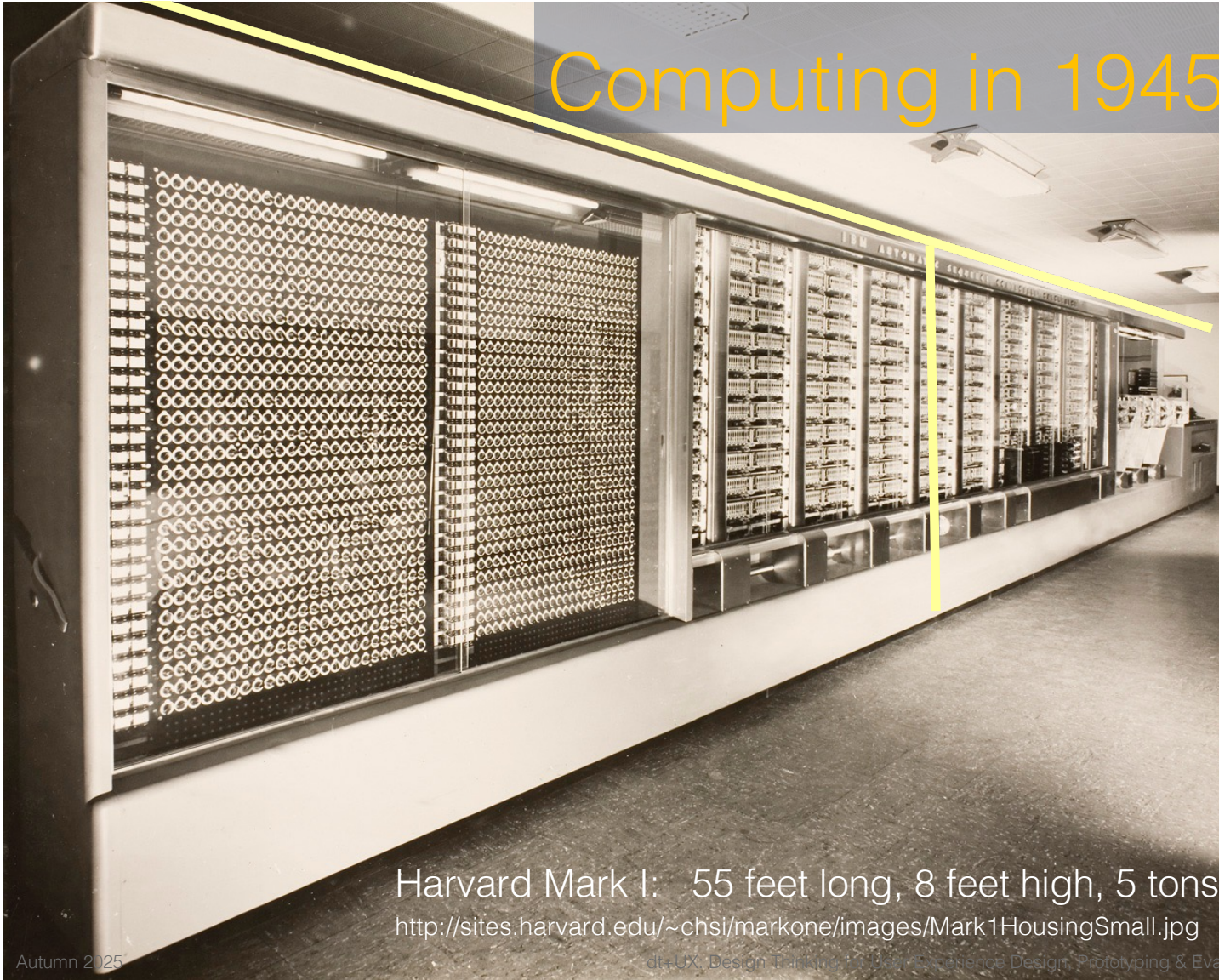
# Wizard of Oz Technique



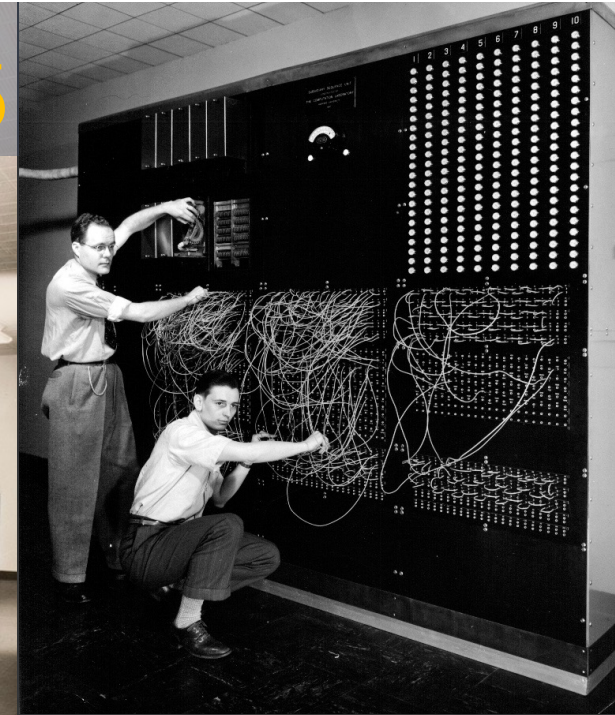
Carbon Shopper

- much more important for hard to implement features

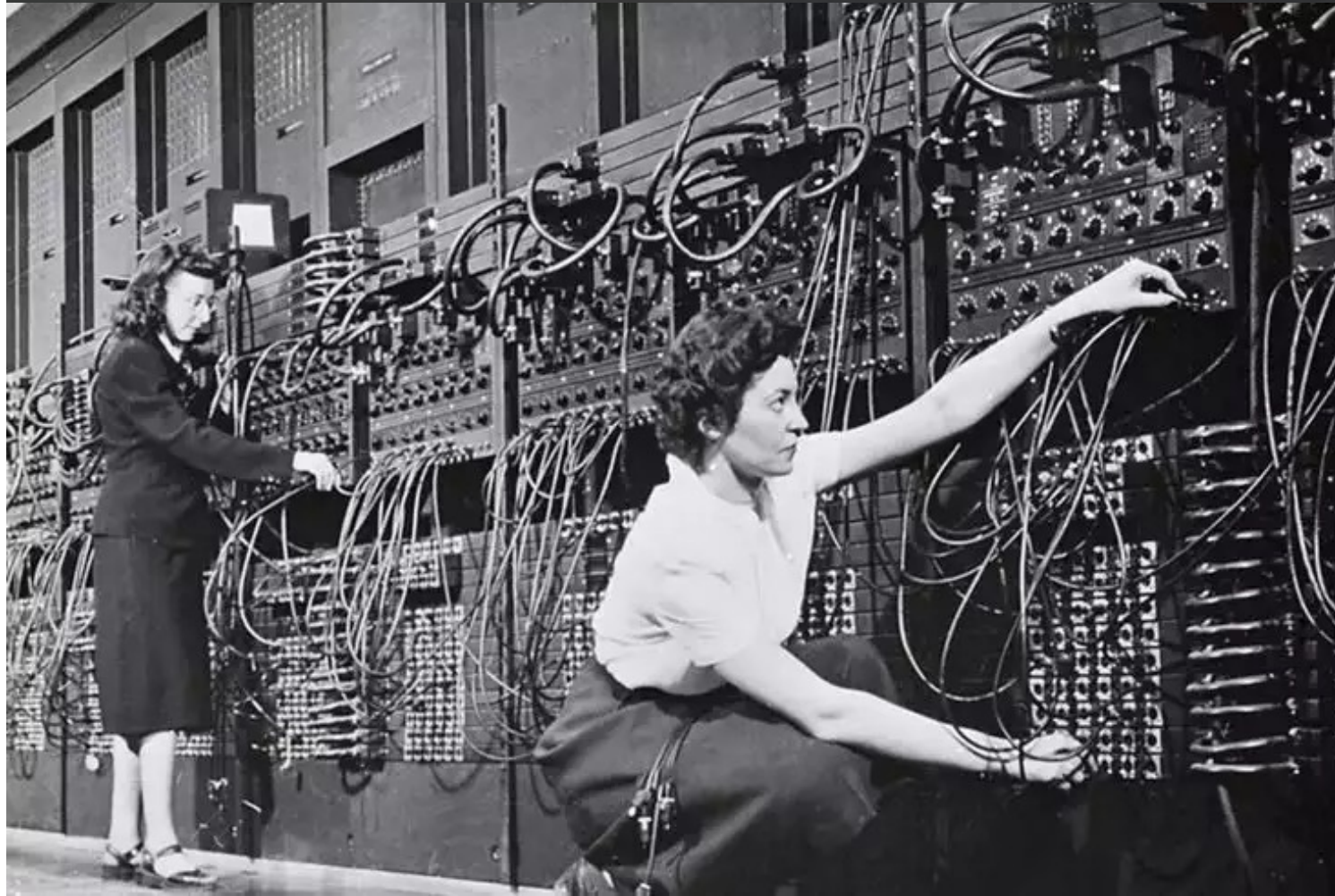
# Computing in 1945



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/>

## **Sister Mary Kenneth Keller**

**S**ister Mary Kenneth Keller, from Cleveland, Ohio, was one of the first women, and very likely the first woman, to receive a Ph.D. degree in computer science in the United States. Keller entered the Sisters of Charity, a Catholic religious order, in 1932 and professed her vows in 1940. Later, she studied at DePaul University, where she received a B.S. degree in mathematics and an M.S. degree in mathematics and physics. In 1965, she received a Ph.D. degree in computer science from the University of Wisconsin. Her dissertation work involved constructing algorithms that performed analytic differentiation on algebraic expressions, written in CDC FORTRAN 63 191.

As a graduate student, Keller also studied at Dartmouth, Purdue, and the University of Michigan. At Dartmouth, the university broke the "men only" rule and allowed her to work in the computer center, where she participated in the development of BASIC.

After receiving her Ph.D. degree, Keller accepted an offer of a faculty position at Clarke College in Dubuque, Iowa. Keller founded the Computer Science Department there and chaired it for 20 years. She also established a master's degree program for computer applications in education.

Keller felt that women should be involved in computer science and especially in the field of information specialist. In her words, "We're having an information explosion, among others, and it's certainly obvious that information is of no use unless it's available." Keller's vision extended beyond education and reached toward artificial intelligence. "For the first time, we can now mechanically

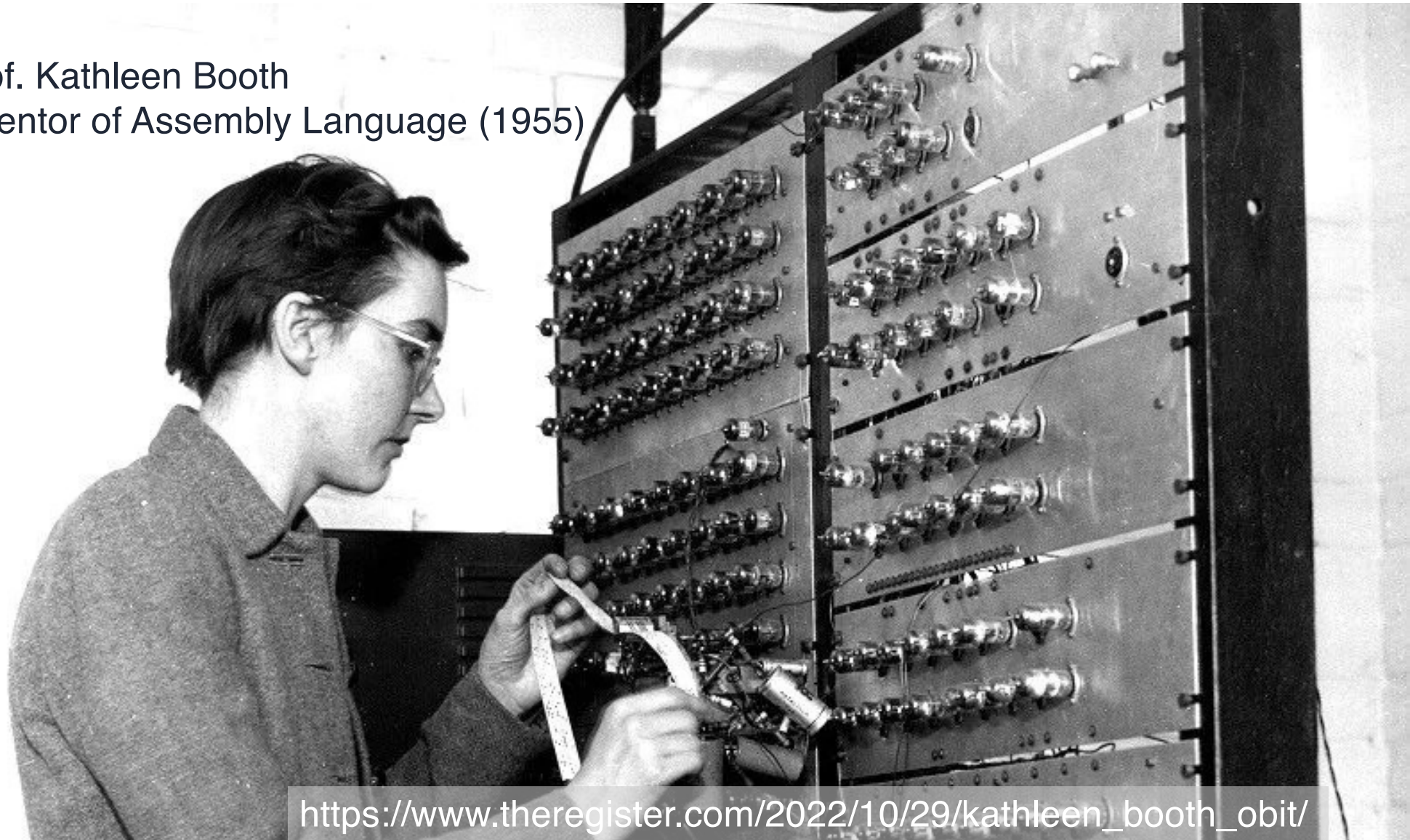
simulate the cognitive process. We can make studies in artificial intelligence. Beyond that, this mechanism [the computer] can be used to assist humans in learning. As we are going to have more mature students in greater numbers as time goes on, this type of teaching will probably be increasingly important." Sister Mary Keller died at the age of 71 but has left a legacy of computers and education at Clarke College.



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Sister Mary Kenneth Keller was one of the first women to receive a Ph.D. degree in computer science in the United States. (Courtesy Mount Carmel Archives)

Prof. Kathleen Booth  
Inventor of Assembly Language (1955)



[https://www.theregister.com/2022/10/29/kathleen\\_booth\\_obit/](https://www.theregister.com/2022/10/29/kathleen_booth_obit/)

# 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 ?
  - wearable cameras to record life – trails of discovery
  - encyclopedia for a nickel – capture of nerve impulses
  - automatic transcripts of speech – Memex

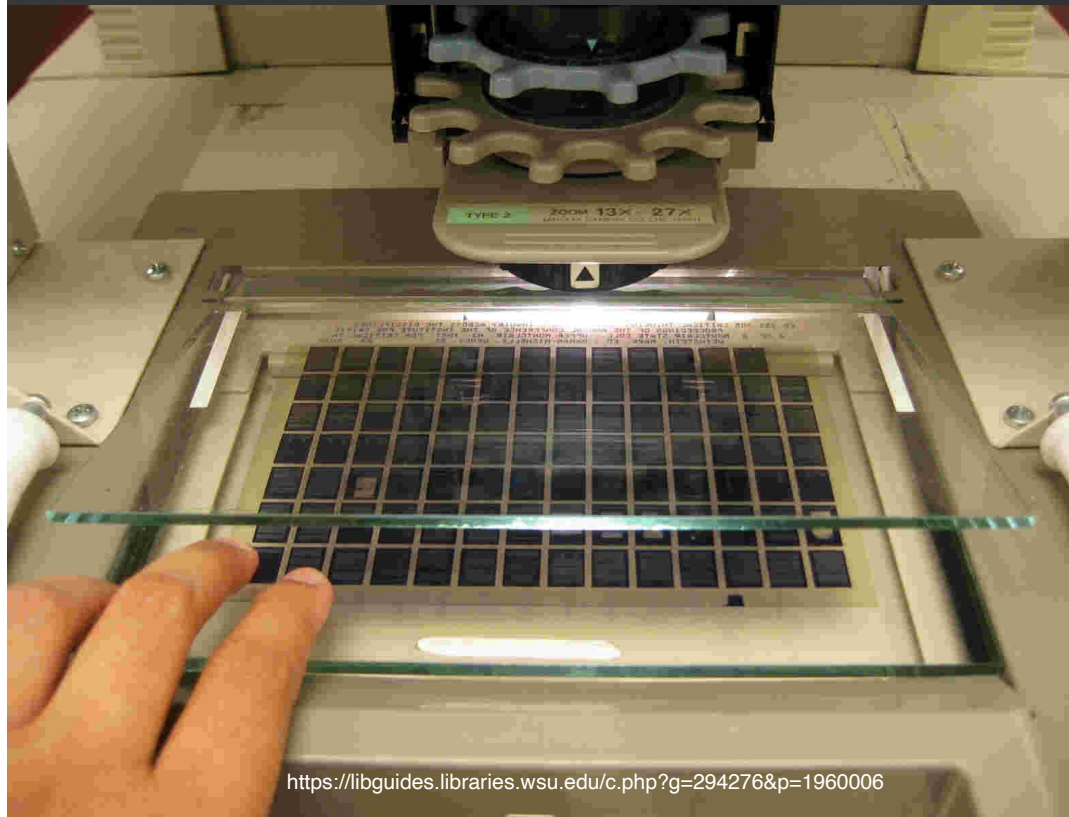


# Memex



Picture from <http://www.dynamicdiagrams.com/design/memex/model.htm#download>  
Demo at [http://www.dynamicdiagrams.com/case\\_studies/mit\\_memex.html](http://www.dynamicdiagrams.com/case_studies/mit_memex.html)

# Microfiche



<https://libguides.libraries.wsu.edu/c.php?g=294276&p=1960006>



<https://images.easytechjunkie.com/microfiche1.jpg>

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



Memex #001 by Trevor Smith  
2013

<http://trevor.smith.name/memex/>

dt+UX: Design Thinking for User Experience Design, Prototyping & Evaluation

# 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. Licensed under CC BY-SA 3.0 de via Wikimedia Commons.

# Computing in 1965

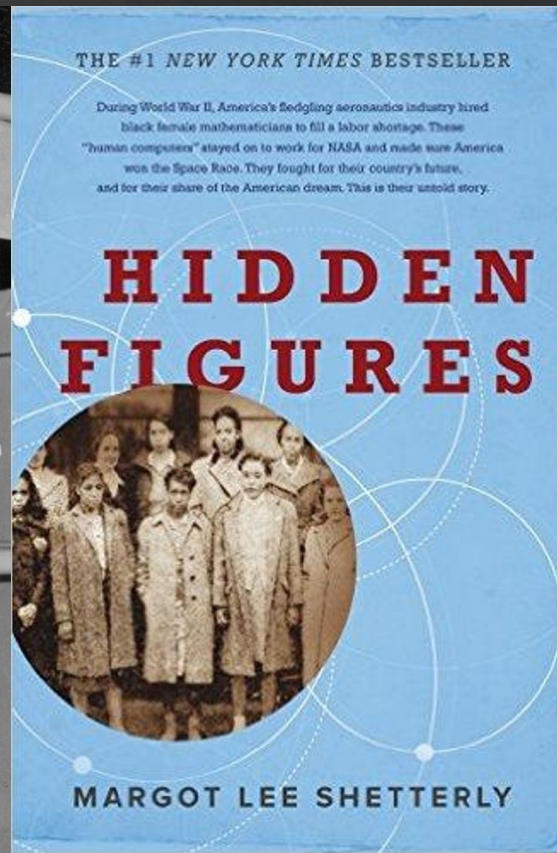
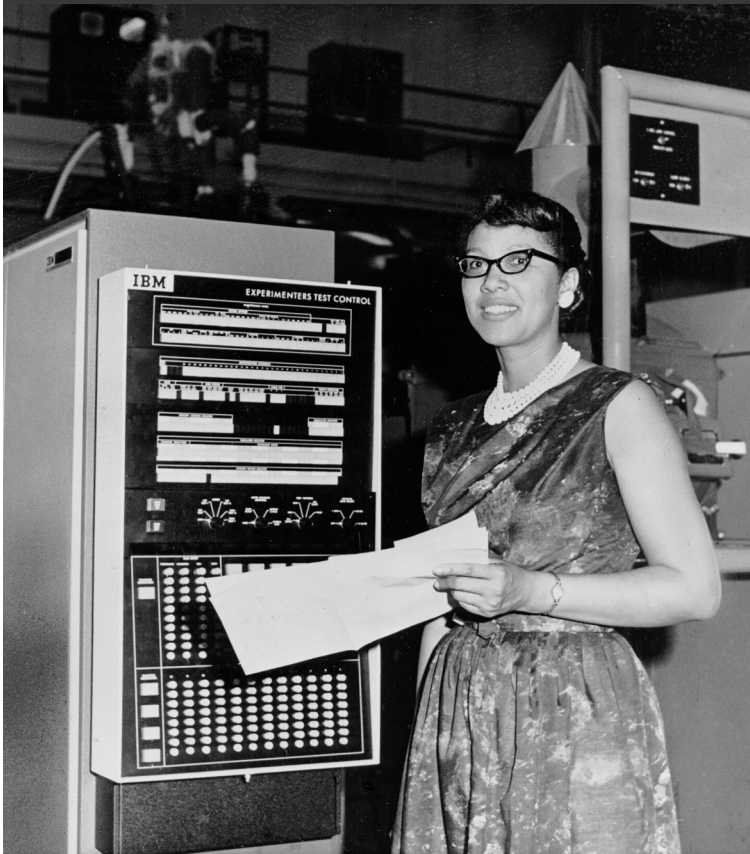


IBM System/360

360-91-panel. Licensed under Public Domain via Wikimedia Commons.

dt-UX: Design Thinking for User Experience Design, Prototyping & Evaluation

# Computing in 1965



Melba Roy Mouton, an early programmer at NASA. (one of the “Hidden Figures”)

Melba Roy headed the group of NASA mathematicians, known as “computers,” who tracked the Echo satellites. Roy's computations helped produce the orbital element timetables by which millions could view the satellite from Earth as it passed overhead. She went on to become Program Production Section Chief at Goddard Space Flight Center.

# 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

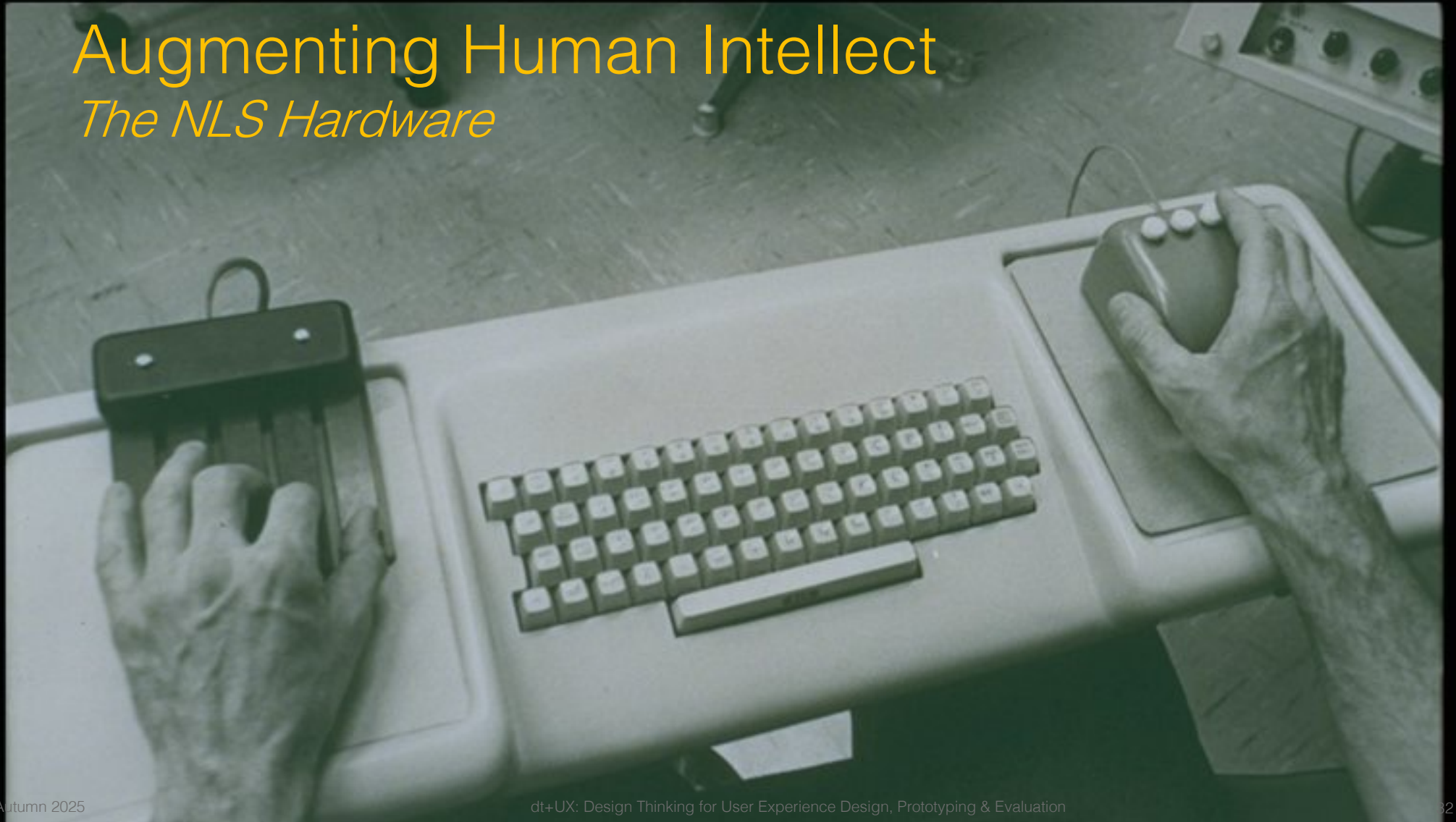
# Engelbart's Crusade

*“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.”*

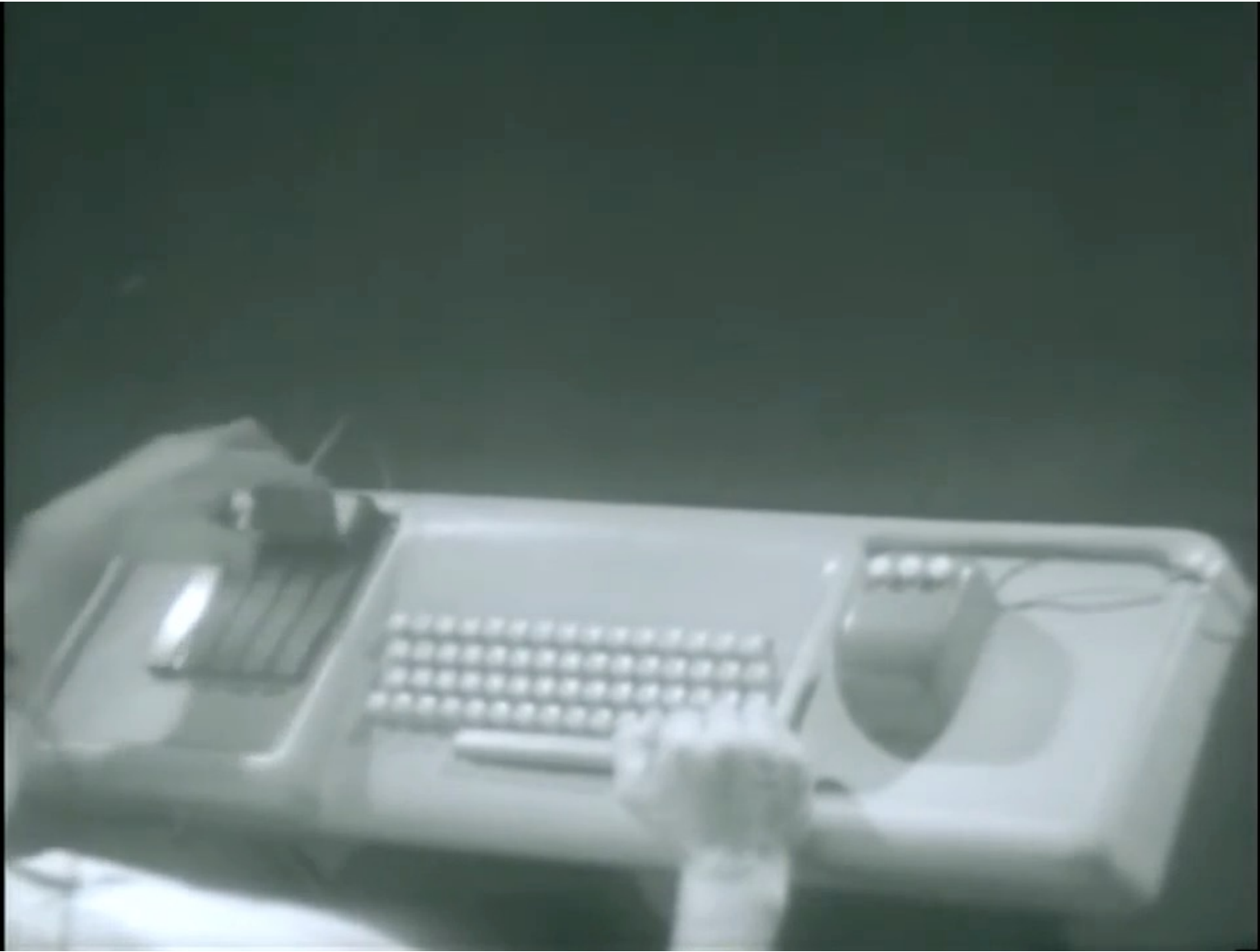
– Douglas Engelbart (1996)

# Augmenting Human Intellect

## *The NLS Hardware*



CONTROL TECHNIQUES  
CONTROL DEVICES  
CONTROL DIALOGUE  
CONTROL METALANGUAGE



1  
INTRODUCTION

----

OVERALL ABOUT PROGRAM  
NLS AS AN INSTRUMENT  
CONTROL TECHNIQUES  
NLS IMPLEMENTATION  
USAGE  
ACTIVITIES  
CREDITS

# Augmenting Human Intellect: Firsts!

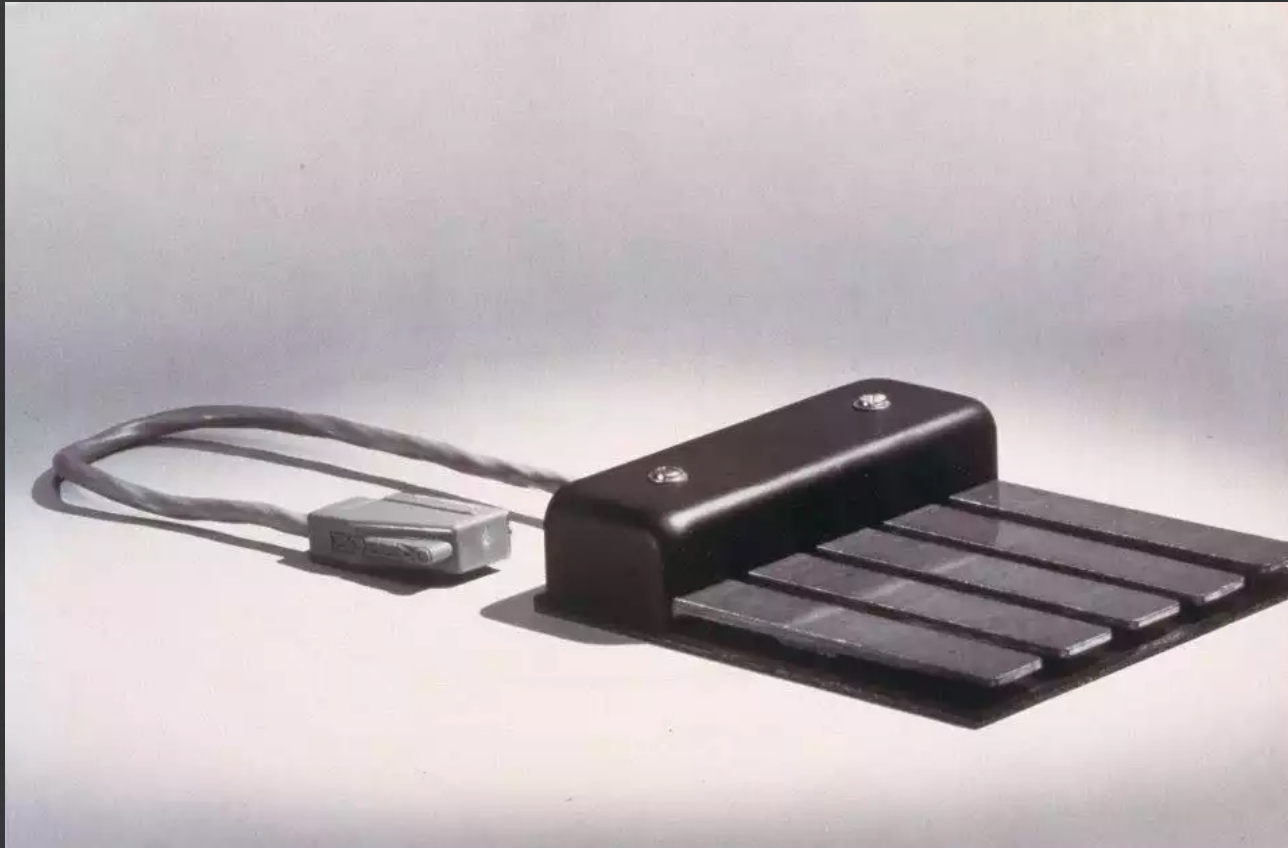
- First mouse, and ?
- First 2D editing & windows
- First hypertext
- First word processing
- First document version control
- First groupware (shared screen teleconferencing)
- First context-sensitive help
- First distributed client-server
- Many, many more!

<https://www.dougengelbart.org/mousesite/About.html>

## NLS Was for Expert Use – Two Hands at Once!

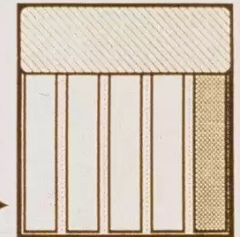


# Chorded Keyboard



One-Handed,  
Chord Keyset:

Code for "a" →



b	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
h	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
z	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

# Tricycles & Bicycles: Specialized Tools



<http://www.athensnews.com/ohio/article-42835-good-for-the-heart-tricycle-race-fundraiser-now-open-to-all.html>



<http://www.flickrriver.com/photos/hotair2112/134303284/>

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>

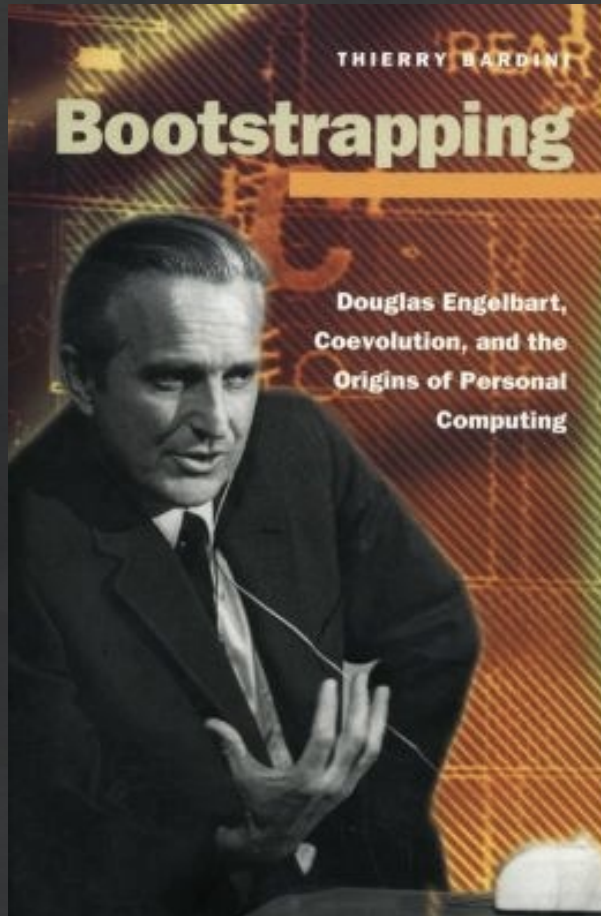
May 24, 1962

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



*Bootstrapping*, Thierry Bardini, 2000

“Program on Human Effectiveness”,  
Douglas C. Engelbart, 1962

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

MouseSite (video clips/papers)

<https://dougengelbart.org/mousesite/>

# SketchPad – Sutherland (1963)



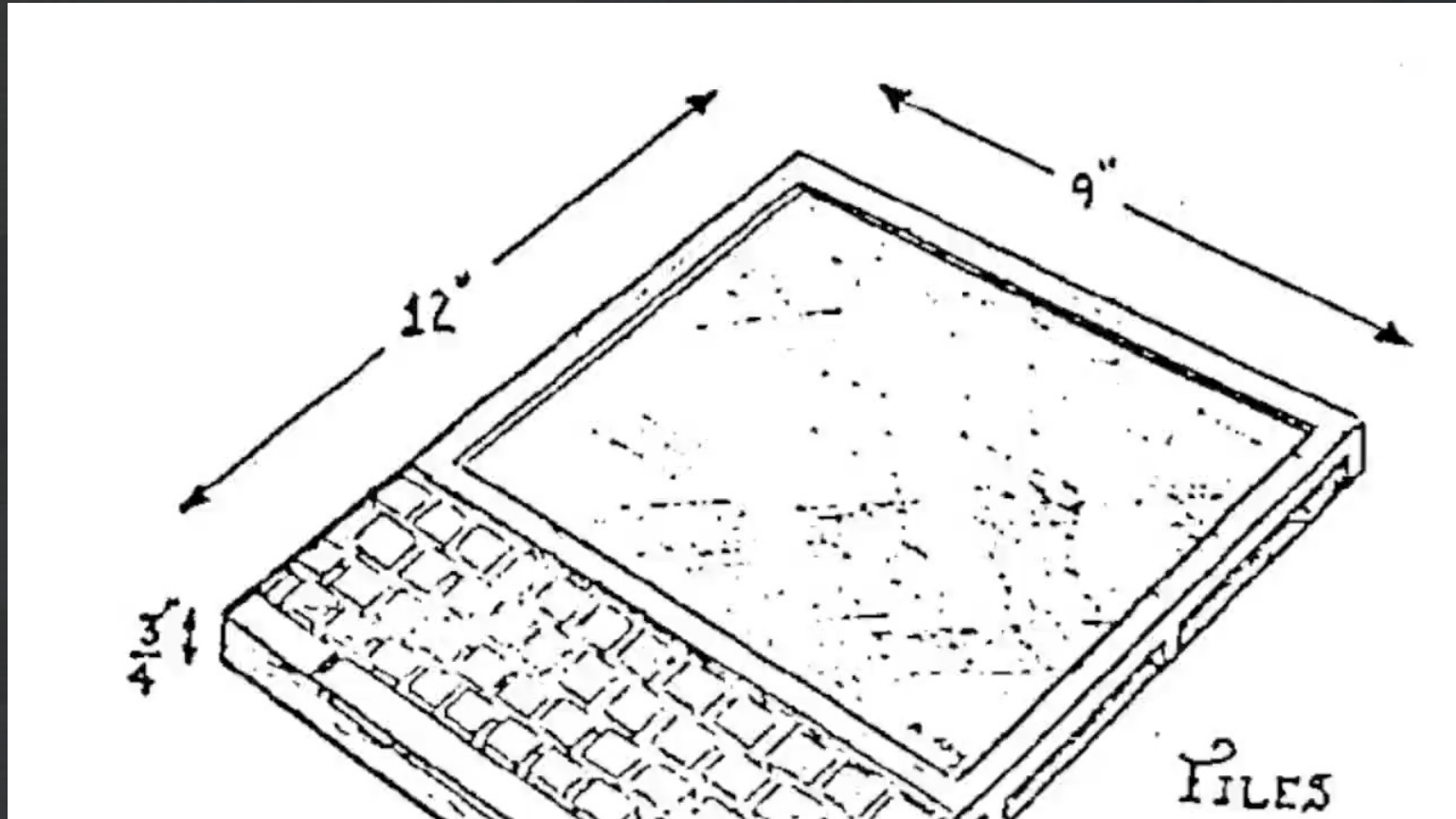
# AR/VR – Sutherland (1965)





dt+UX: Design Thinking for User Experience Design, Prototyping & Evaluation

# Dynabook – Kay (1974)



# Xerox Star – 1st Commercial GUI (1981)



WYSIW

hat Y Get

“The best way to predict the future is to invent it”

*Alan Kay*

# 2025au CS147 Film Festival Awards

- Best Acting
- Best Music/Soundtrack
- Funniest/Most Humorous
- Best Locations
- Best Production Values
- Most Coherent Values
- Best Project Concept
- Staff Pick
- Best Overall Video / People's Choice



**Motimates**

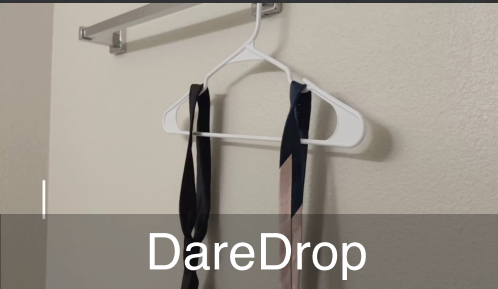
# The Nominees...



blooME



Chatatouille



DareDrop



Flippin



Plan your day by how it feels, not how it looks.



Medi-Pal



Best Acting

Runners-Up

Medi-Pal

Theo

Winner

Chatatouille

Best Music / Soundtrack

Runners-Up

Mathy

Theo

Winner

Kyro

Funniest/Most Humorous Video

Runners-Up

Nobody even close

Winner

Chatatouille

# Best Locations

Runners-Up

DareDrop

roots

Winner

Flippin

# Best Production Values

Runners-Up

Mathy

BlooMe

Winner

Theo

# Most Coherent Values

Runners-Up

BlooMe

Kyro

Winner

roots

Best Project Concept

Runners-Up

Flippin

Theo

Winner

BlooMe

Staff Pick

Runners-Up

Flippin & Kyro

Theo

Winner

Motimates

Best Overall Video / People's Choice

Runners-Up

Flippin

Theo

Winner

Chatatouille

# Administrivia

- Keep up w/ readings/HW on class website
  - <http://hci.stanford.edu/cs147>
  - midterm coming up Wed next week
- Questions?

# Midterm

*Scope:* Everything through Usability Testing (Week 8 - Lecture 14) including Reading/Videos/Podcasts, Lectures, Assignments.

*Format:* Will primarily be a multi-part design problem (but know and be able to demonstrate *all* aspects of the design process & use facts for reasoning for your answers), with some multiple choice/short answer as well.

*Place:* Hybrid exam – part I in class & part II (design problem) at home (Gradescope)

*Time:* This midterm will take place during a 24-hour window starting Wednesday, Nov. 12, at 1:30 pm Pacific time. You will have ~1:30 for part I in class and ~2 hour for part II at home.

# TEAM BREAK

“The best way to predict the future is to invent it”

*Alan Kay*

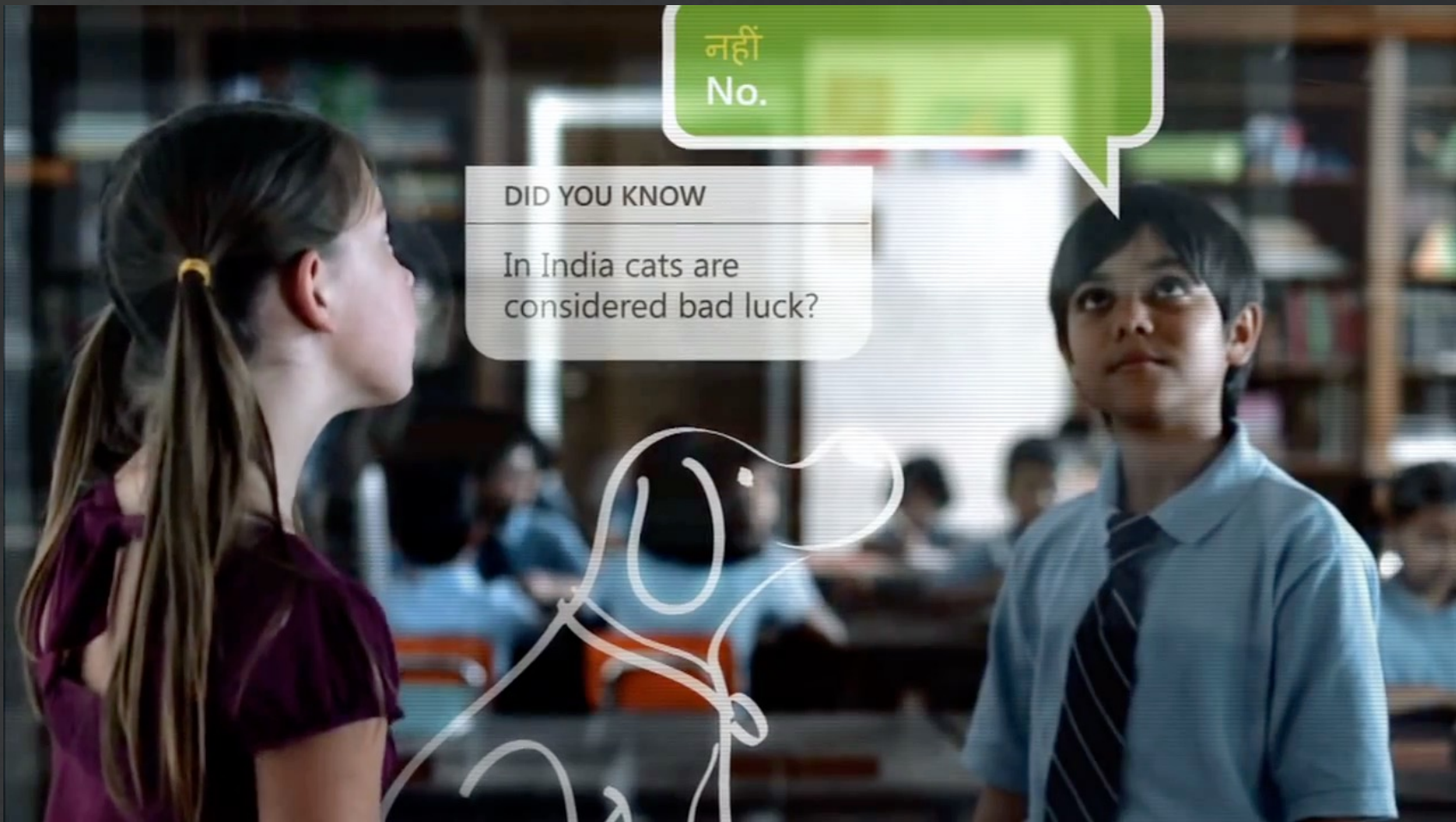


# The Future

# Minority Report (2002)



# Microsoft Productivity Future Vision 2019 (2009)



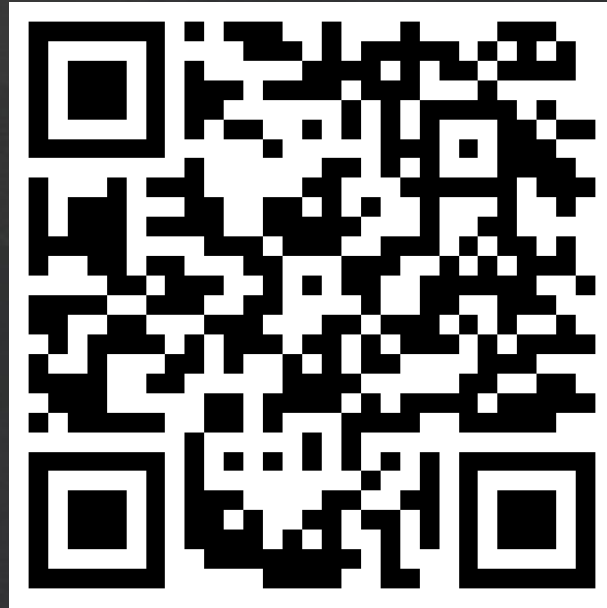
# Spike Jonze's Her (2013)



# Next Time

- Lecture
  - Usability Testing (no reading)
  - Midterm Review
  - Bring your questions
- Studio
  - Group Heuristic Evaluation (need to participate to get a grade)

# Exit ticket



[hci.st/cs147-25au-exit-7-888](https://hci.st/cs147-25au-exit-7-888)