

IN4MATX 133: User Interface Software

Lecture 1:
Introduction & History

I am thrilled that you have decided to take
this class and that I get it to teach you!

Today's goals

By the end of today, you should be able to...

- Describe how society got to today's ubiquitous computing
- Hypothesize why web technology has become the de-facto tool for interface development
- Identify your course staff
- Summarize this course's goals and know how to find policies
- Describe upcoming course tasks

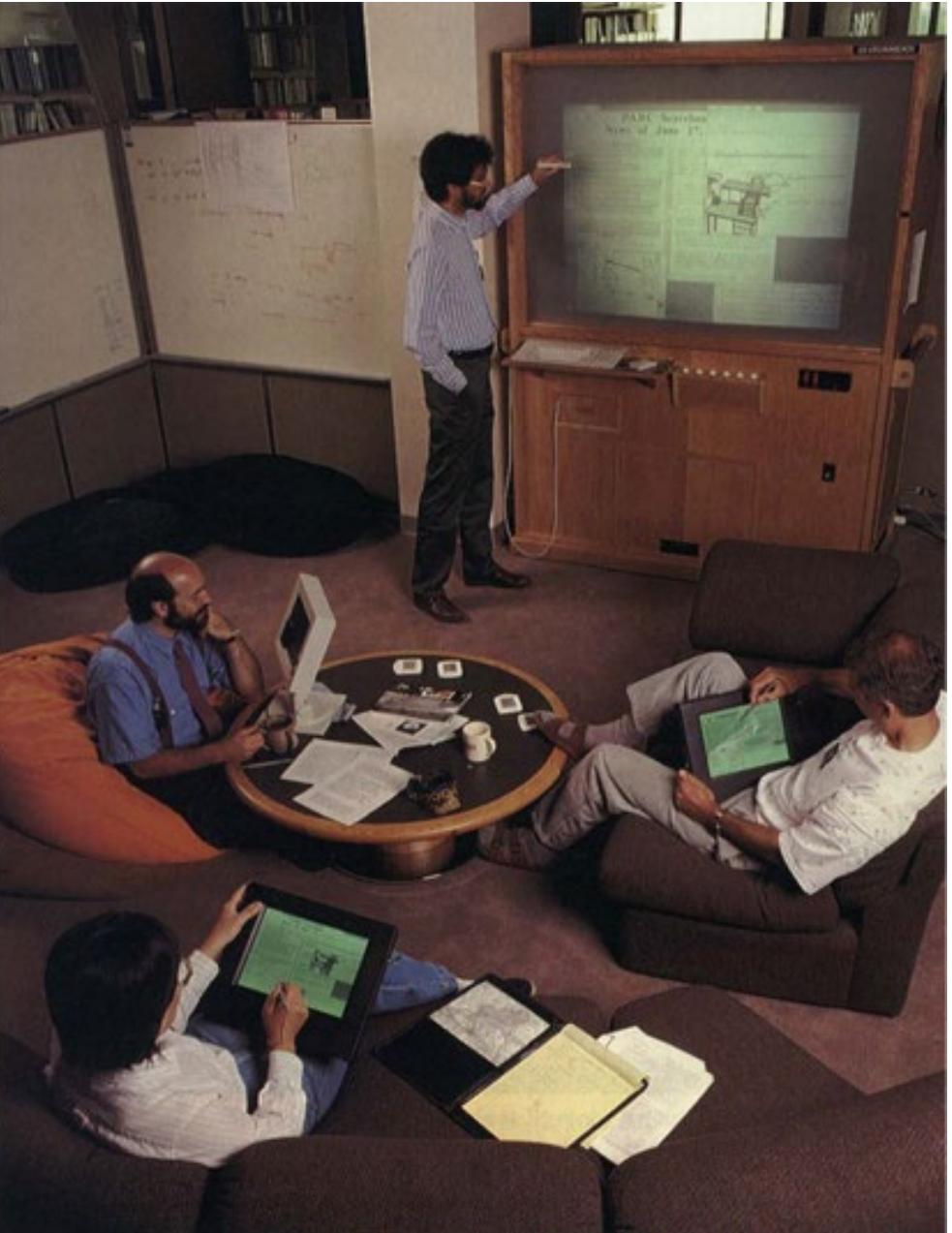
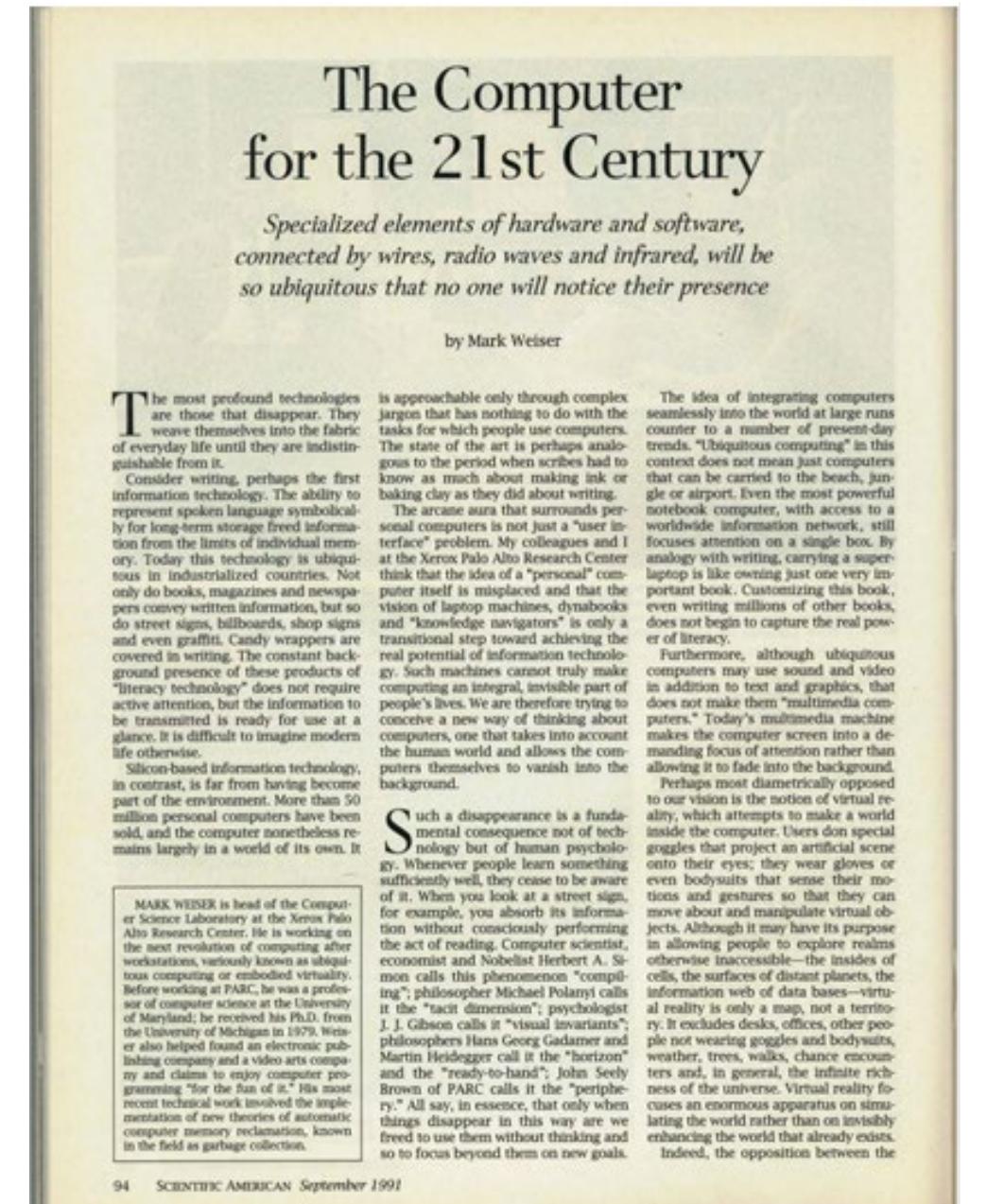
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The Computer for the 21st Century

- By Mark Weiser, Chief Scientist, Xerox Parc
- Published in Scientific American, 1991
- Coined “Ubiquitous Computing”
 - Reflective and speculative
- <https://dl.acm.org/citation.cfm?id=329126>



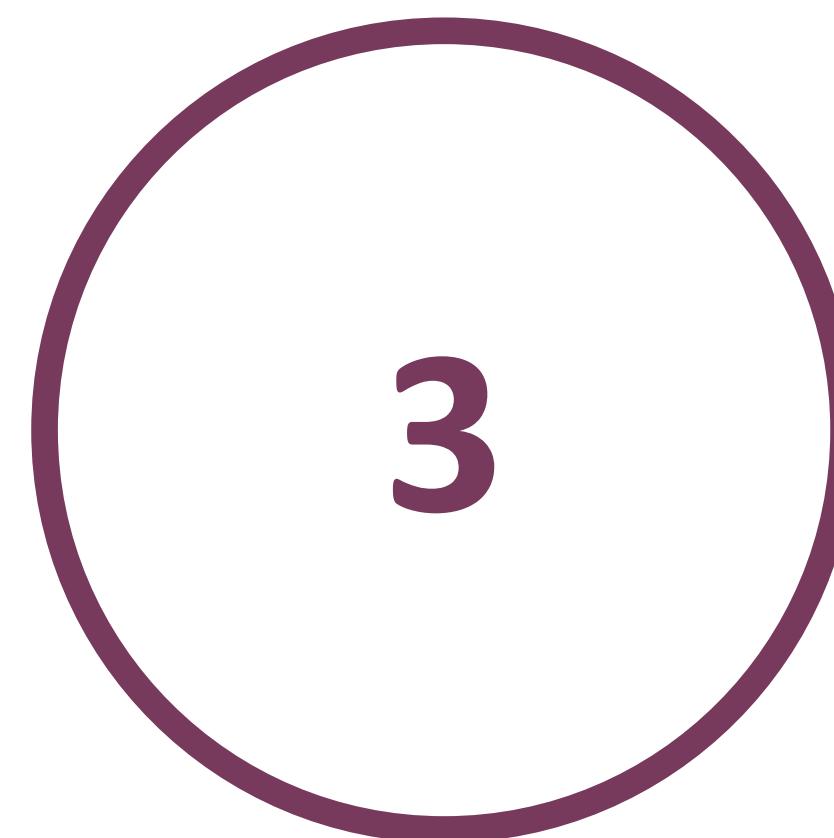
Three waves of computing



Mainframe
computing



Personal
computing



Ubiquitous
computing

Three waves of computing



Mainframe
computing



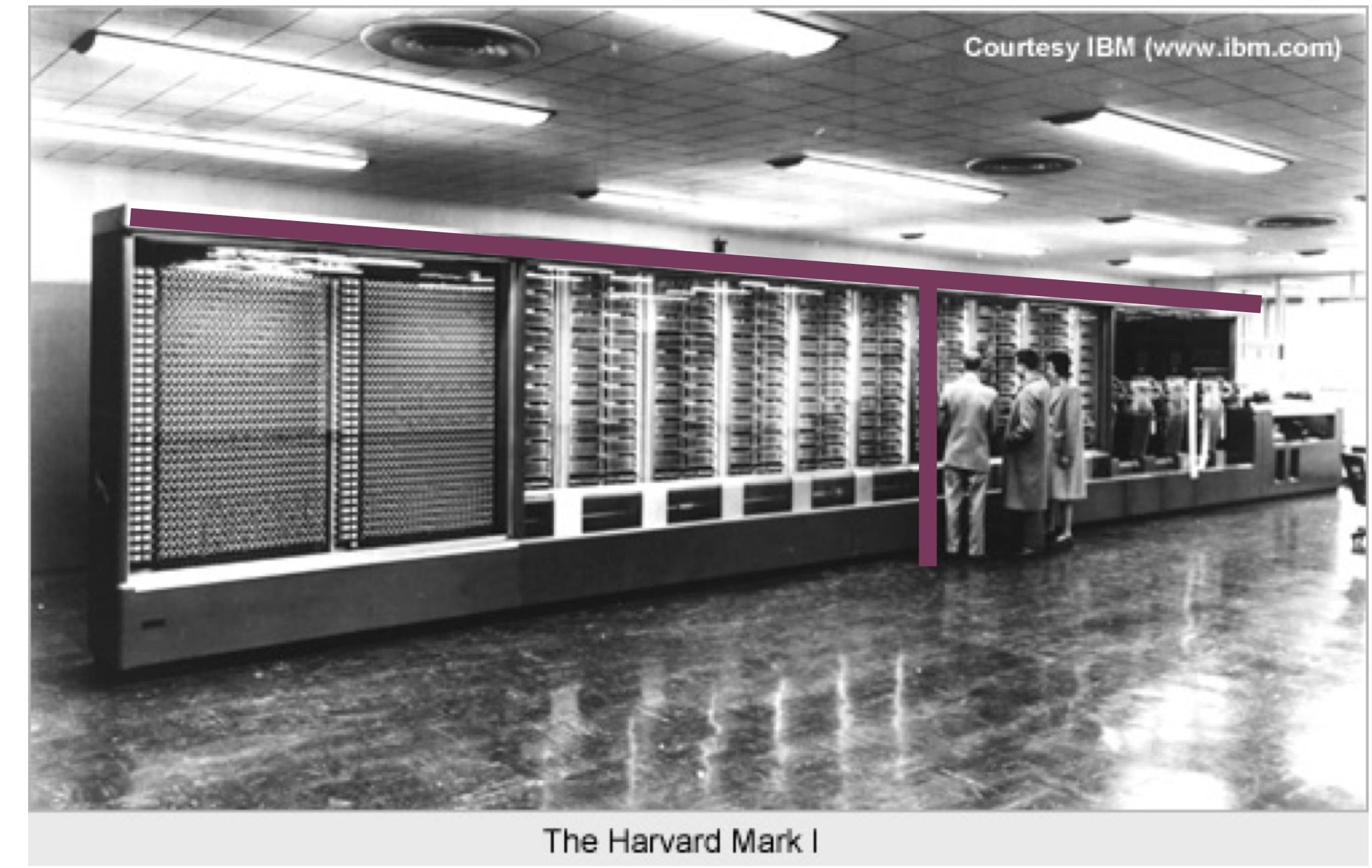
Personal
computing



Ubiquitous
computing

First wave: mainframe computing

- Harvard Mark I
- Large (55 feet wide, 8 feet high, 5 tons)
- Expensive (enclosure alone was \$50,000 in 1945!)
- Used to calculate implosion during the Manhattan Project

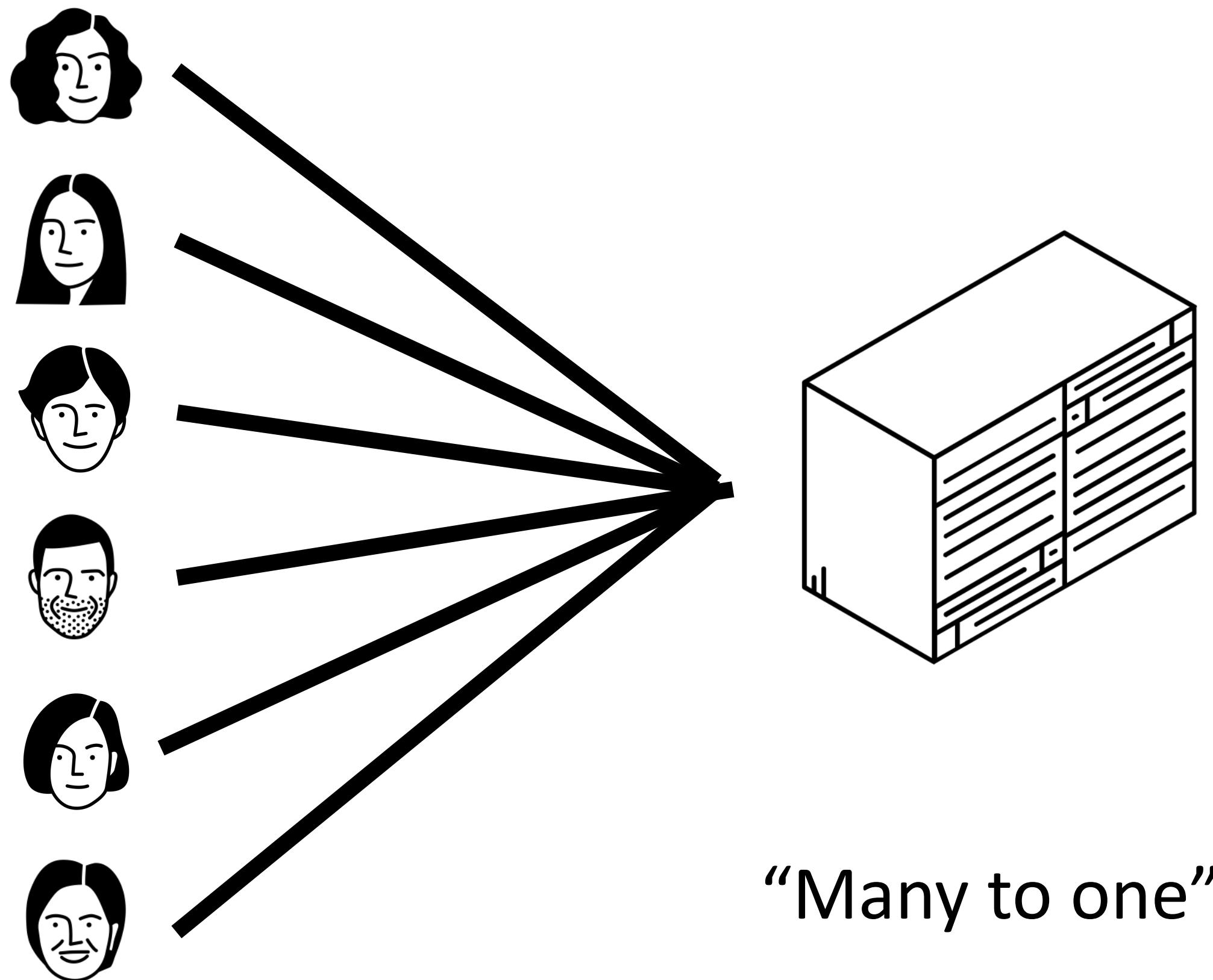


First wave: mainframe computing

- Batch processing
 - Write your program on punch cards
 - Wait your turn for the computer
 - Run program, hope it works
 - If it doesn't, you'll have to fix it and wait for your next turn
 - Efficient use of resources, but poor interactivity

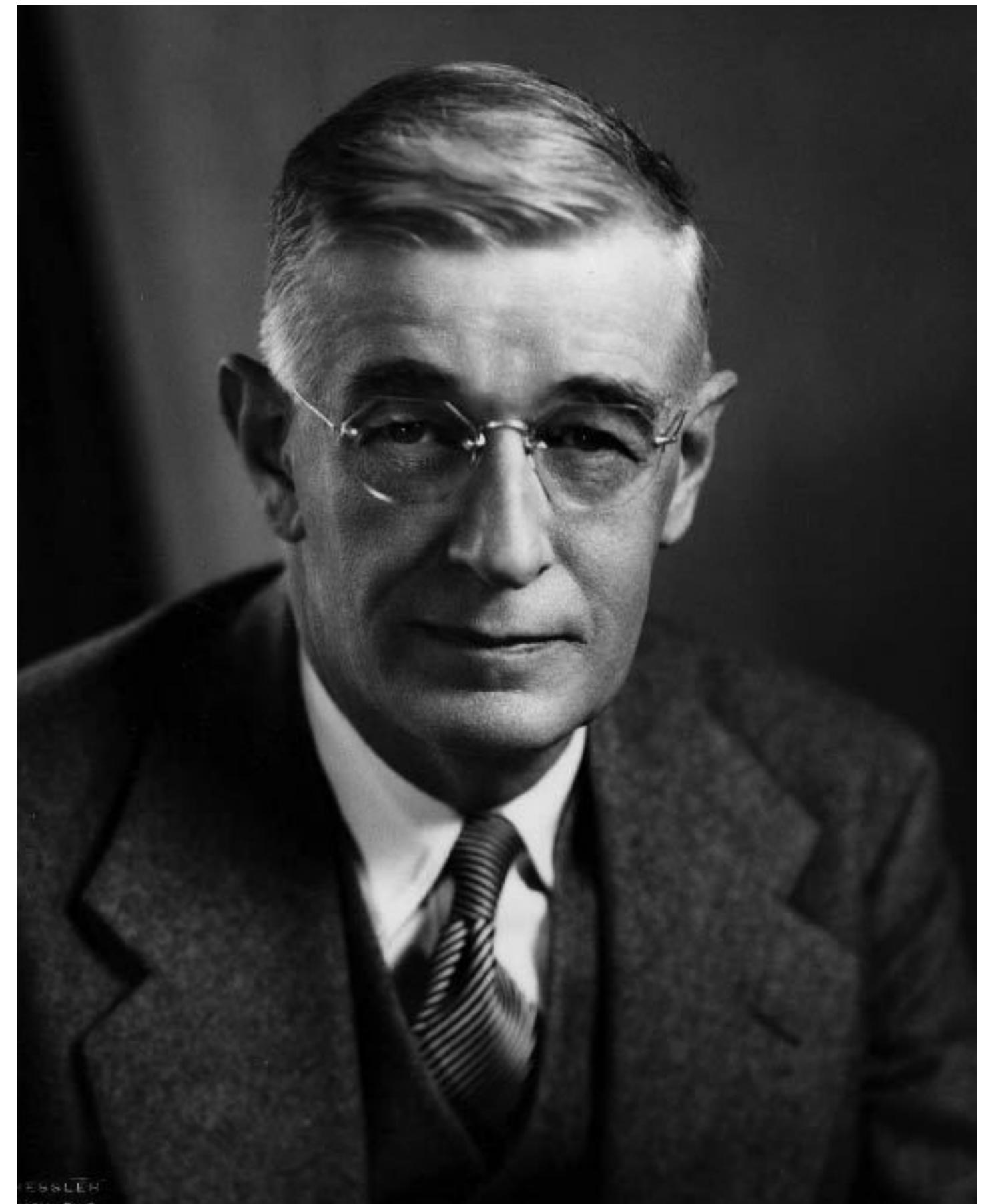


First wave: mainframe computing



Vanneaver Bush

- Faculty at MIT
- Oversaw National Defense Research Committee, which led the Manhattan Project
- Post-war, helped define mission of the National Science Foundation
 - Federal government funds universities
 - Universities do basic scientific research
 - Research helps economy and defense



As We May Think

- Published in Atlantic Monthly, 1945
- <http://www.theatlantic.com/magazine/print/1945/07/as-we-may-think/3881/>
- In part, set out to define a post-war scientific research agenda
 - Speculative, not reflective

Memex (1945 speculative design)



<https://www.youtube.com/watch?v=c539cK58ees>

(video from 1995 animation presented at SIGIR, not from 1945)

Did you recognize any interactions that are commonly used today?

Memex (1945 speculative design)

- Linking information across devices and sources
 - Hypertext, the foundation of the web
 - Pen-based annotation of primary sources



Command-Line interfaces (1960's)

- Originally used in a terminal connected to a mainframe
 - Was eventually integrated into personal computing (in Unix, etc.)
 - A person could change execution based on output
 - Enabled real-time debugging



Doug Engelbart's NLS (1968)

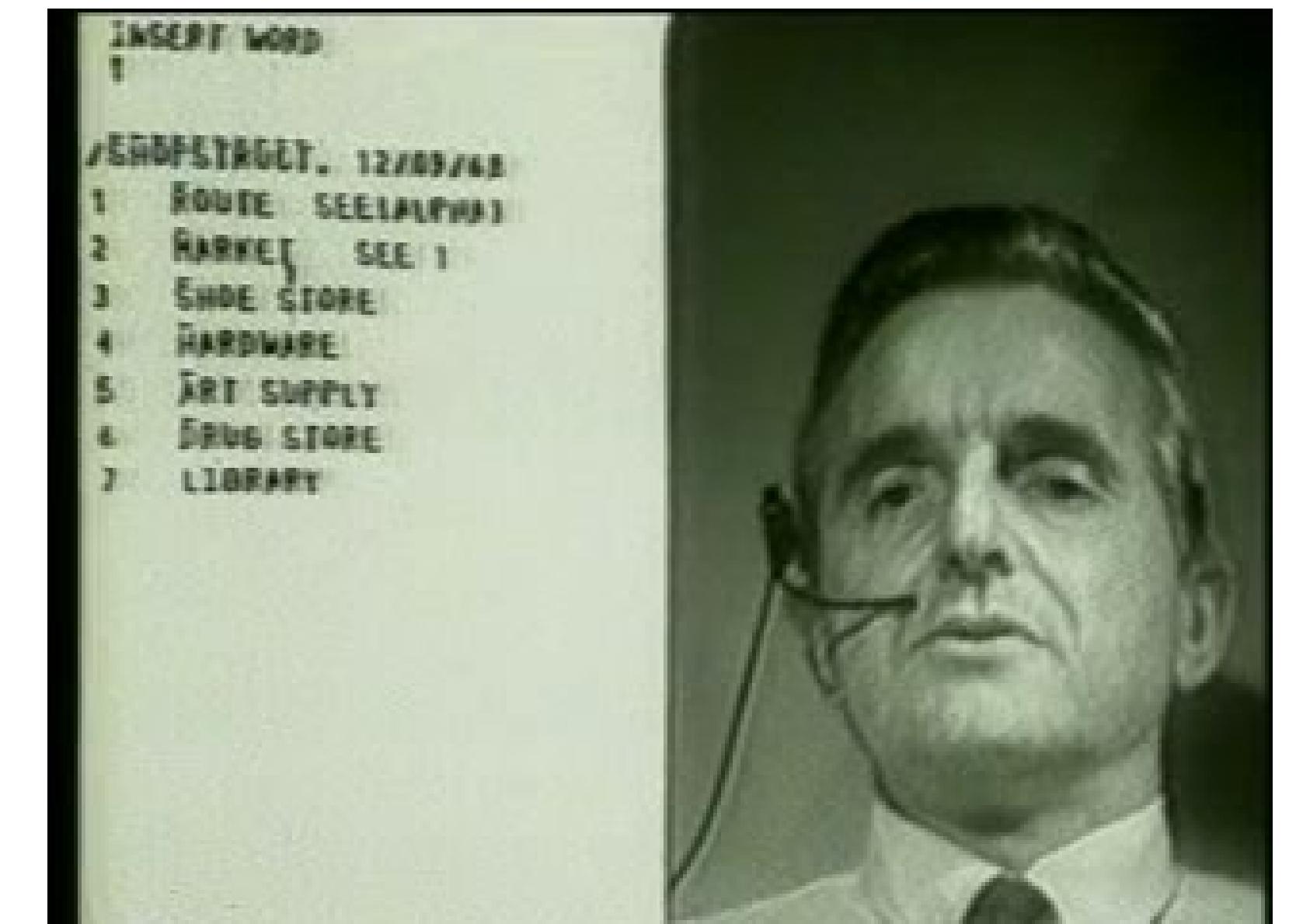


<http://www.douengelbart.org/firsts/1968-demo-interactive.html>

Did you recognize any interactions that are commonly used today?

Doug Engelbart's NLS (1968)

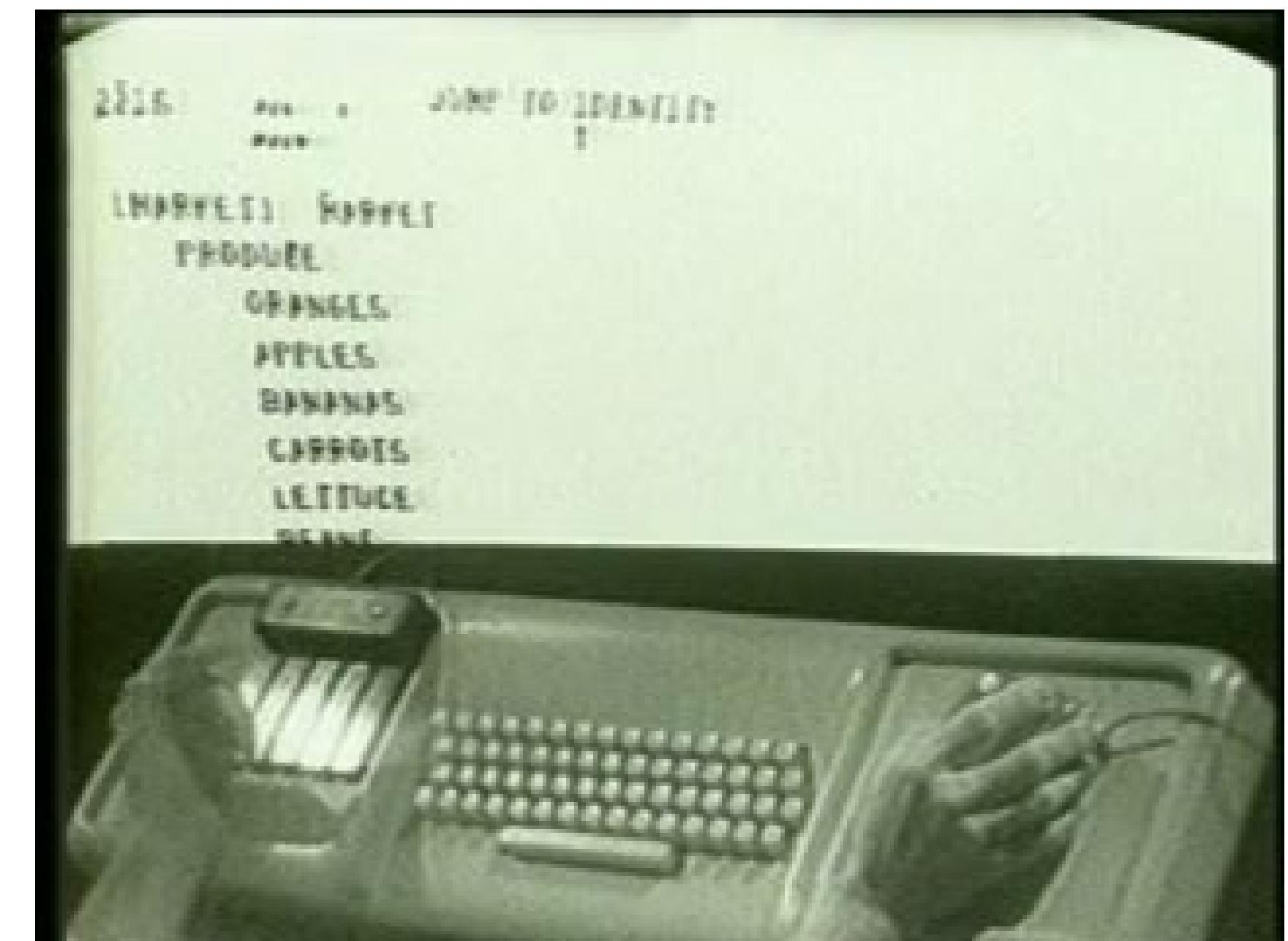
- First working hypertext system
- Invention of the mouse
- Simple graphics
(earlier systems had this,
but used in a full system here)



INSERT WORD
1
/SHOPSTAGET. 12/09/68
1 ROUTE SEE ALPHABET
2 MARKET SEE 1
3 SHOE STORE
4 HARDWARE
5 ART SUPPLY
6 DRUG STORE
7 LIBRARY

Doug Engelbart's NLS (1968)

- It introduced other ideas as well
 - A chording keyboard
 - Remote collaboration
- Some people thought he “faked it”
- Others thought it was irrelevant because “the terminal can do the same”
- Engelbart Won Turing Award in 1997



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Course Overview

- Course staff introductions
- Administravia
- Topics covered
- A0 (due Monday)

Who we are

Professor Mark Baldwin

- Ph.D. Informatics,
University of California, Irvine 2020
- Master of Human-Computer Interaction,
Carnegie Mellon University 2013

Stella Lau (TA)

Dennis Wang (TA)

Antriksh Ganjoo (Reader)

The syllabus

- Explains due dates/times, assignment policies, exam goals, etc.
- It probably answers your question
 - Please check it before you ask us
- In-person class on Monday and Wednesday
- Zoom class on Friday
 - Will focus on code and development
 - Attendance is optional

Staying in touch

- Web: <http://inf133.markbaldw.in/>
- Email us: See Syllabus
- Zulip: See Syllabus
 - Information will go out to Zulip first!
- For the most part, Canvas will only be used for submission and grades.
- Think about your questions, if it is a personal matter, then reach out via email. Otherwise use Zulip #general/#random streams!

Staying in touch

- Office hours:
 - Instructor by appointment
 - TA's by appointment
- Submission: clone starter code from GitHub Classroom
 - Zip up finished assignment, submit on Canvas
 - Unsure about Git or GitHub? Go to discussion on Monday!
- YuJa: All weekly lectures will be uploaded to Canvas and linked in weekly notes page

Communication best practices

- Zulip is best for assignment clarification and assistance
 - Please use the public channels to allow your peers to help
 - Direct messages to me are ok for now. But unless you ask a question during scheduled class hours, don't expect an immediate response.
 - Keep TA requests in public channels.
- Email is best for personal communication (personal concerns, regrades)

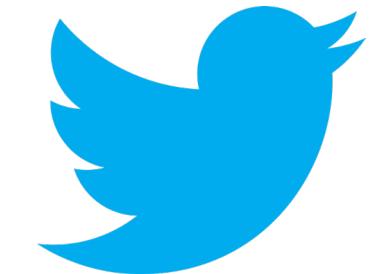
Course goals

By the end of this course, you should be able to...

- Build webpages in HTML, CSS, and JavaScript which are sensitive to screen size and a person's abilities
- Build mobile apps in TypeScript frameworks, following design best practices
- Leverage external web APIs (databases, information sources) and device resources (photos, sensors) to lower development burden and enable new capabilities
- For a given design, choose appropriate devices to support and development frameworks to use

Assignments

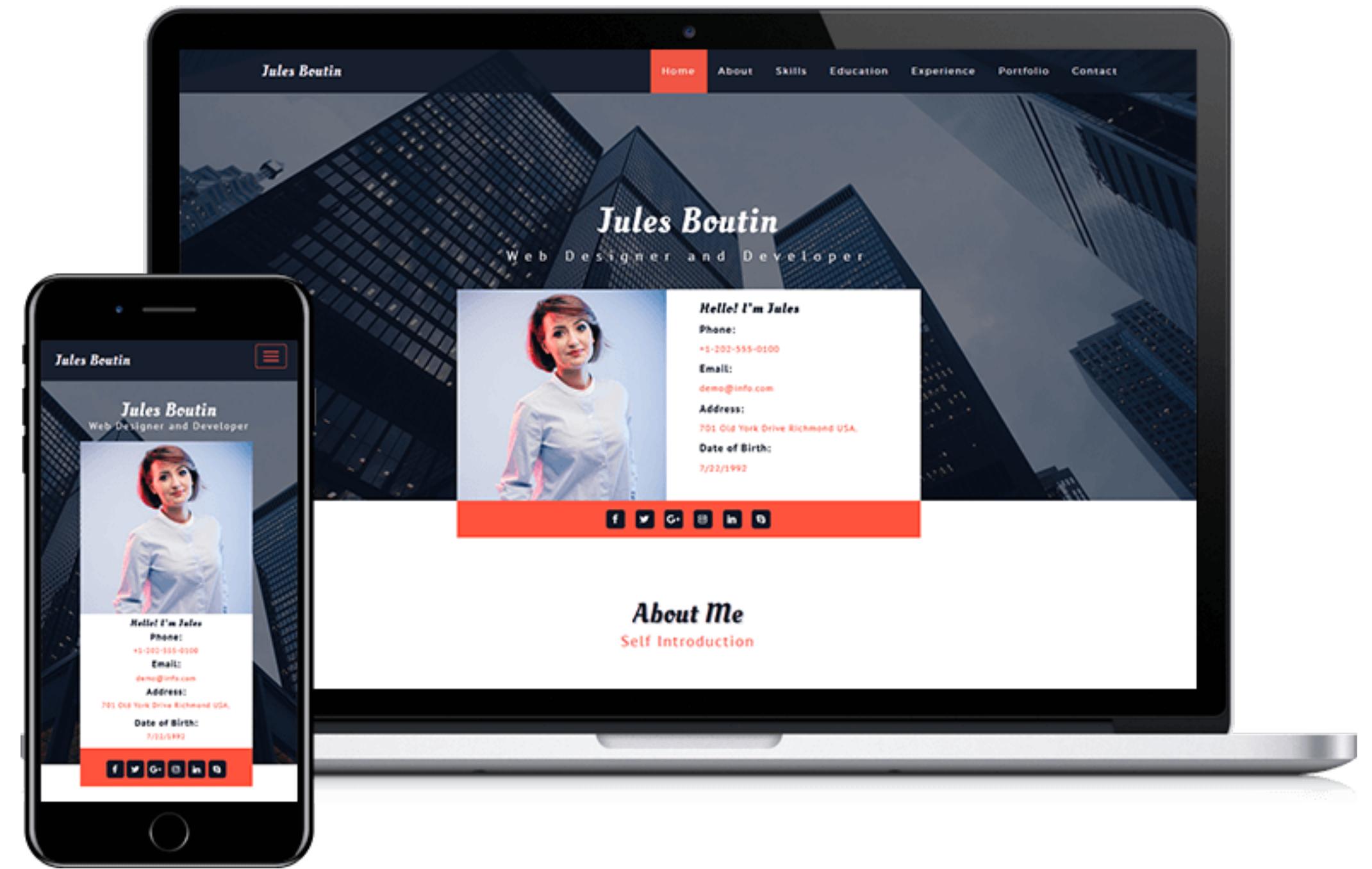
- A1: Static web with HTML and CSS
- A2: Programming on the web
- A3: Web frameworks
- A4: Mobile development
- Final Project



A1

Responsive Website in HTML and CSS

- Learning goal: develop familiarity with HTML and CSS, which form the foundation of all web design
- Apply *responsive* design, or adapt to screen size and orientation



Participation

- Socrative quizzes. Must complete all quizzes.
- You will be allowed to miss if absence requested
 - Send a message to the Attendance Bot on Zulip.
 - To get credit, you will need to submit a one-page summary of the lecture recording.
- Answer each other's questions on Zulip!
 - You can also get participation extra credit this way
 - You can respond faster than we can
 - Often, you've experienced the same pitfalls

Discussion sections

- Are optional
- Are a great opportunity to get more depth on topics discussed in lecture
- Opportunity to engage live with TA's

Reflection

- This is an applied course with a lot of programming.
 - About half of the class will cover implementation techniques
 - The other half is theoretical concepts which inform design and development
- We'll teach principles and languages at a high level,
but you'll need to pick up the specifics of APIs, packages, etc. on your own.
 - We're happy to help, but we haven't used every aspect of every API

Reflection

- We have high expectations
 - We want you to make cool things
- But we also care and will listen
 - Let us know how things are going, ask questions
- Be “all in”
 - If you’re not ready to commit, please drop now
 - Someone else will be happy to take your spot
- The more active you are the better the experience will be for everyone

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