KAIST Spring 2025

CS374: Intro to HCI

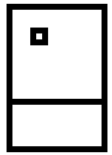
hci.cstlab.org

Class 01:
Introduction & Course Overview

2025.02.25

Joseph Seering

MOST OF COMPUTER SCIENCE IS ABOUT MAKING COMPUTERS THAT ARE...



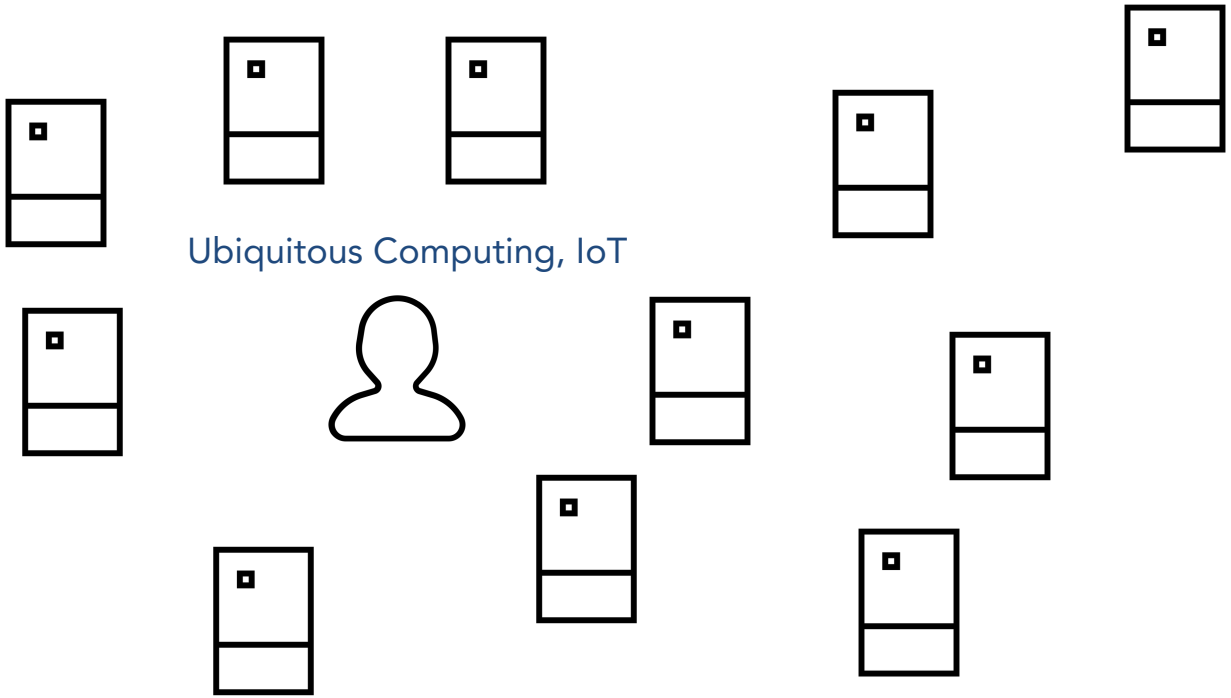
Fast
Secure
Intelligent
Power-efficient
Error-free
Maintainable
Cheap
Small
Reliable
Standard-compliant
Modular

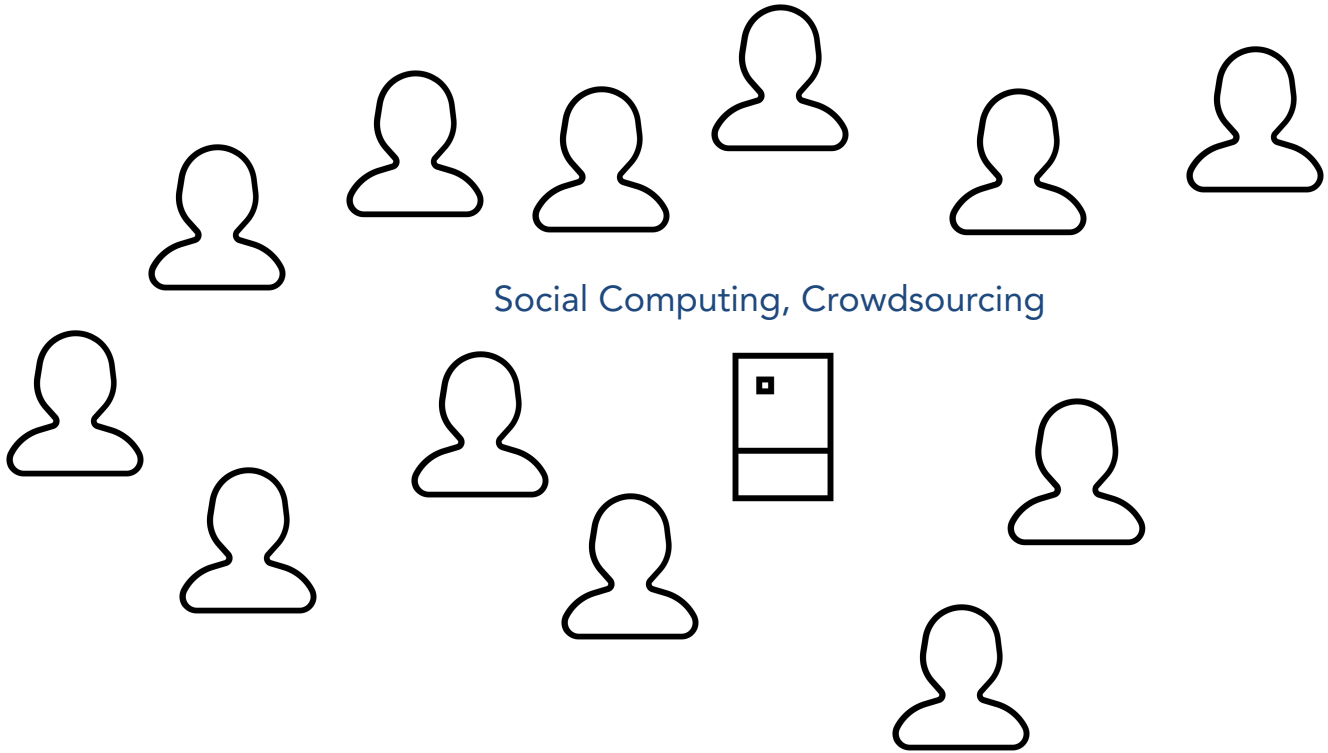
HUMAN-COMPUTER INTERACTION IS ABOUT MAKING COMPUTERS THAT ARE...

useful
usable

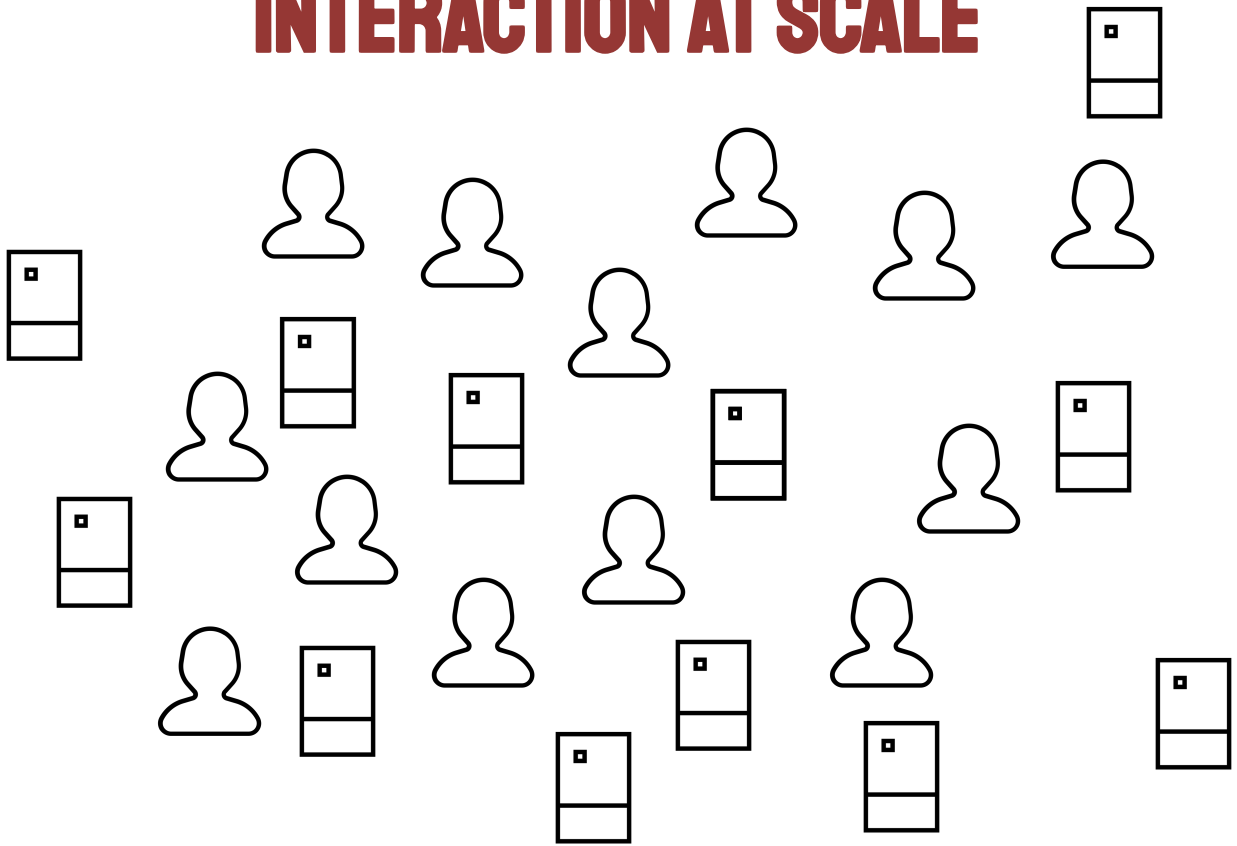
HCI ACCOMPLISHES THE GOAL BY DESIGNING AND BUILDING BETTER...

interaction


Ubiquitous Computing, IoT


Social Computing, Crowdsourcing

INTERACTION AT SCALE



LEARNING OBJECTIVE

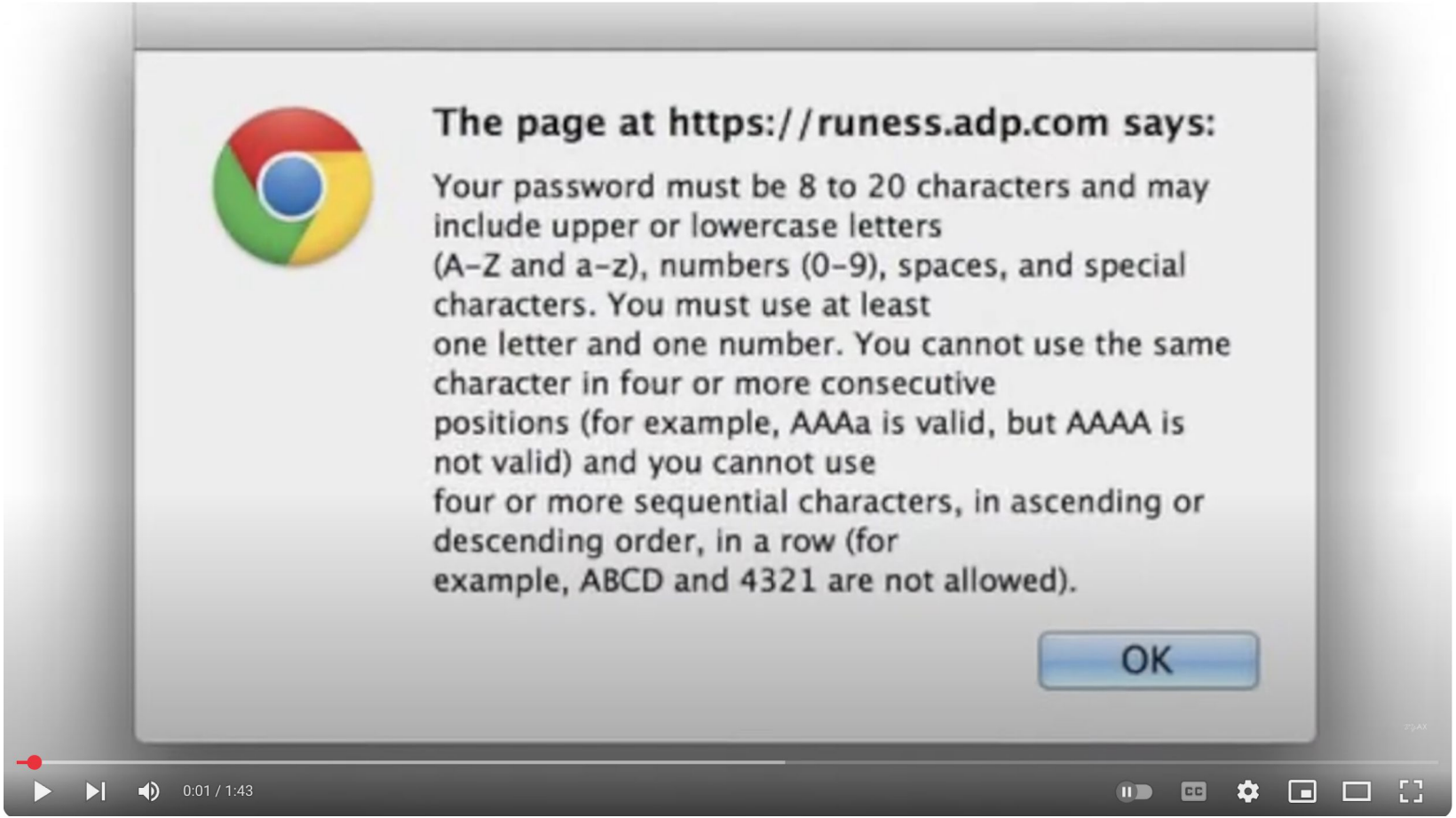
“You’ll master the skills to design useful and usable interfaces that are carefully catered to users’ needs.”

WHAT YOU'LL LEARN IN CS374

- Design principles
- Design techniques
- Implementation techniques

WHAT YOU'LL LEARN IN CS374

- Design principles
  - learnability, efficiency, safety, human capabilities, ...
- Design techniques
  - contextual inquiry, storyboarding, prototyping, user testing, ...
- Implementation techniques
  - GUI, HTML/JavaScript, output, input, layout, color, typography, ...



https://www.youtube.com/watch?v=rxdyp_dyYZU

“Users keep making stupid mistakes when using this simple feature.”

“I built this really cool thing. How come nobody uses it?”

Human Error?
No, it's BAD DESIGN.

YOU'RE NOT THE USER.

- UI is about communicating with users.
  - Users are NOT LIKE YOU.

- The user is ALWAYS RIGHT.
  - Usability problems are the designer's fault.
  - BUT: The user is NOT a designer.

USABILITY

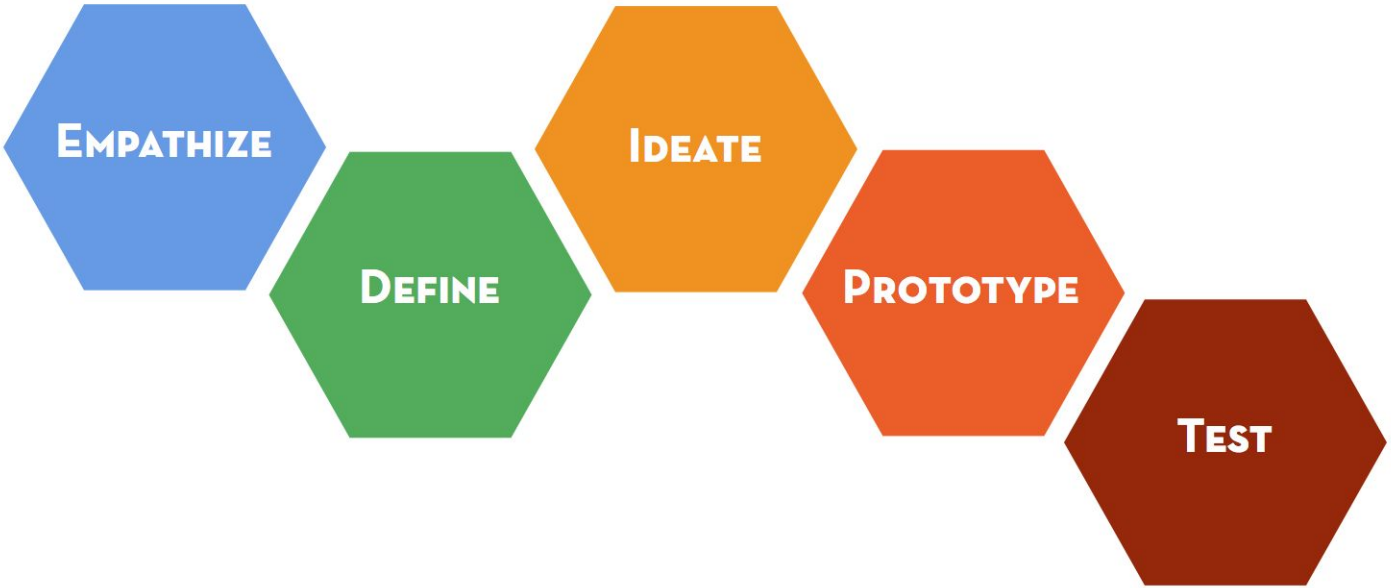
How well users can
use the system’s functionality

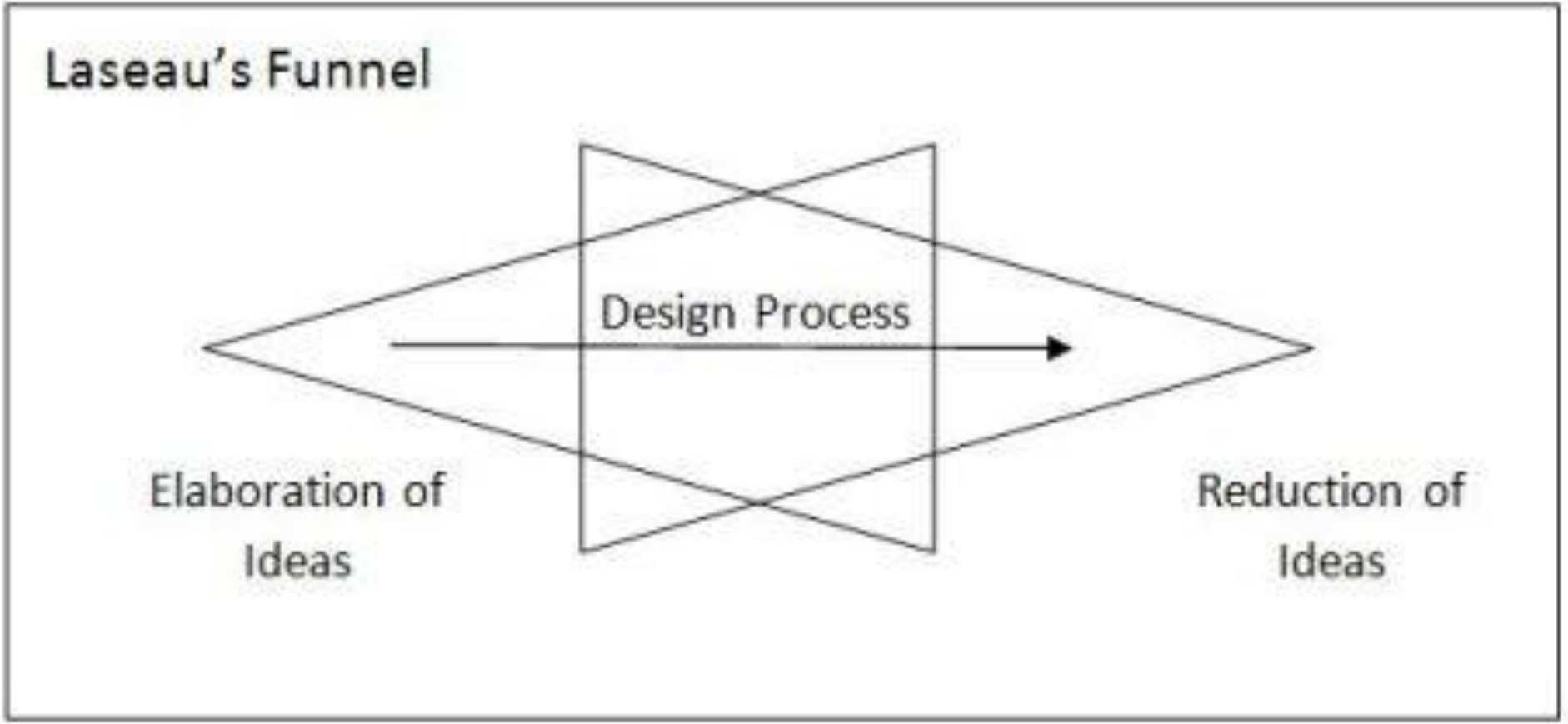
WHAT YOU'LL LEARN IN CS374

- Design principles
  - learnability, efficiency, safety, human capabilities, ...
- Design techniques
  - contextual inquiry, storyboarding, prototyping, user testing, ...
- Implementation techniques
  - GUI, HTML/JavaScript, output, input, layout, color, typography, ...

USER-CENTERED DESIGN PROCESS

USER-CENTERED DESIGN PROCESS

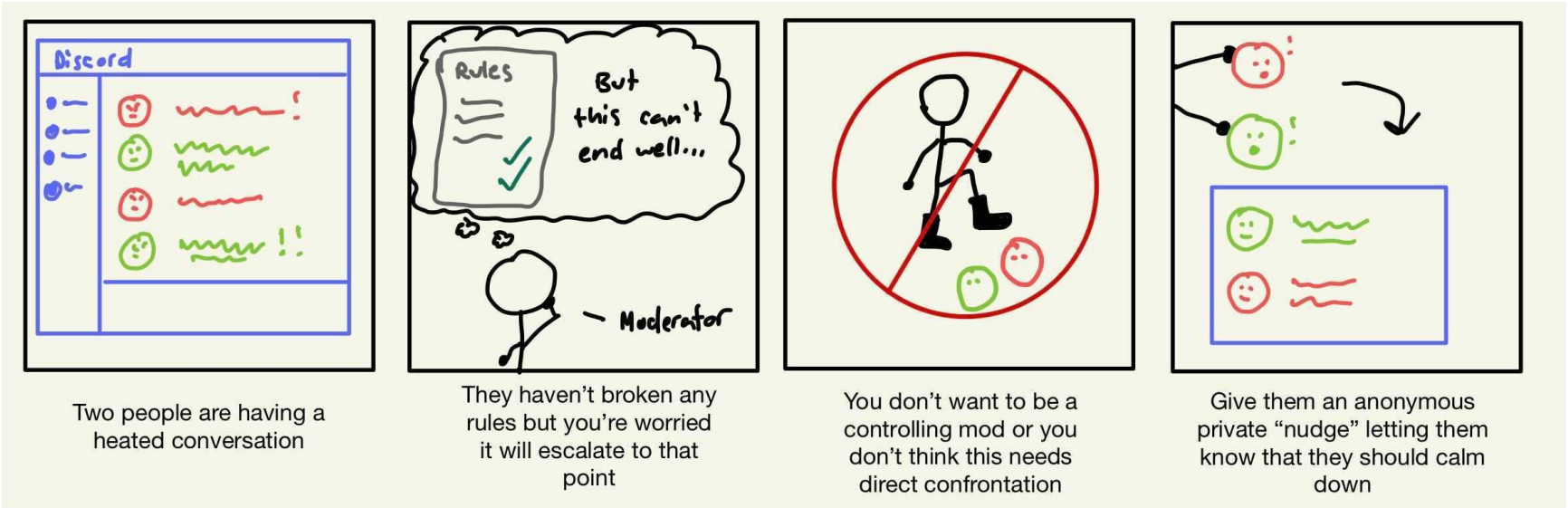




https://divergentmba.wordpress.com/2011/03/14/sketching-user-experiences-by-bill-buxton/

NEEDFINDING

STORYBOARDING



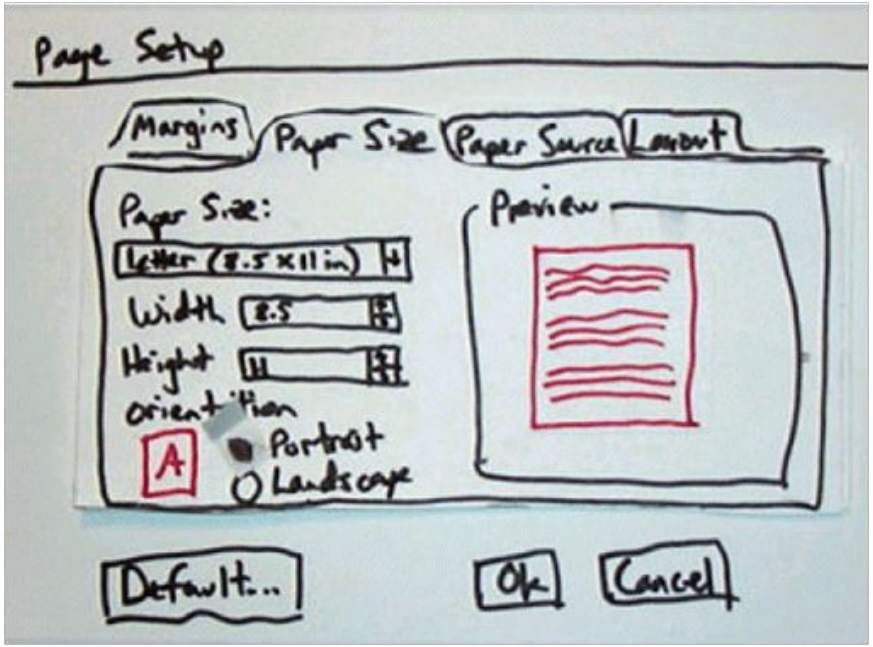
Seering et al. "Chillbot: Content Moderation in the Backchannel."

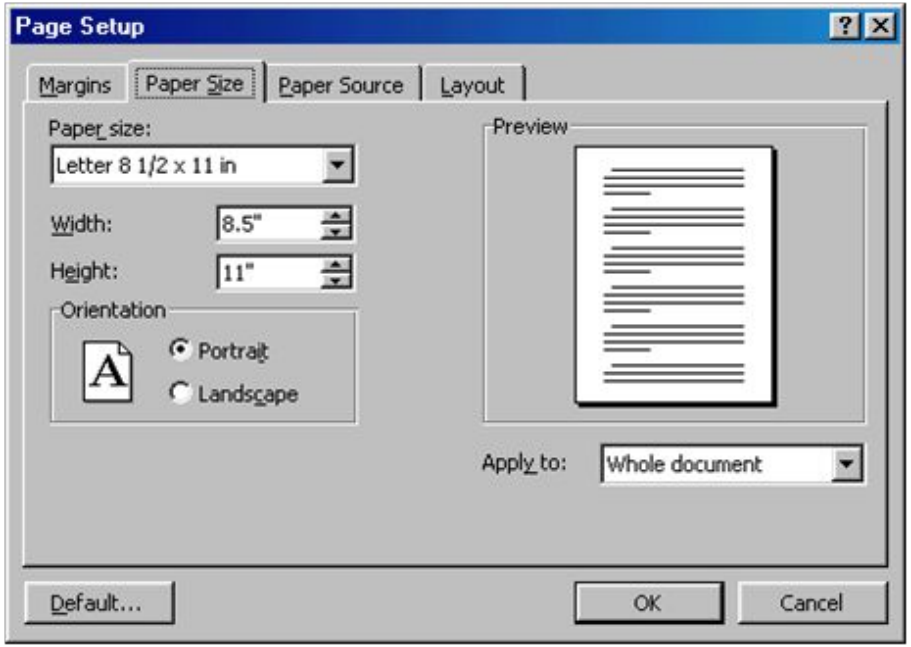
PROTOTYPE

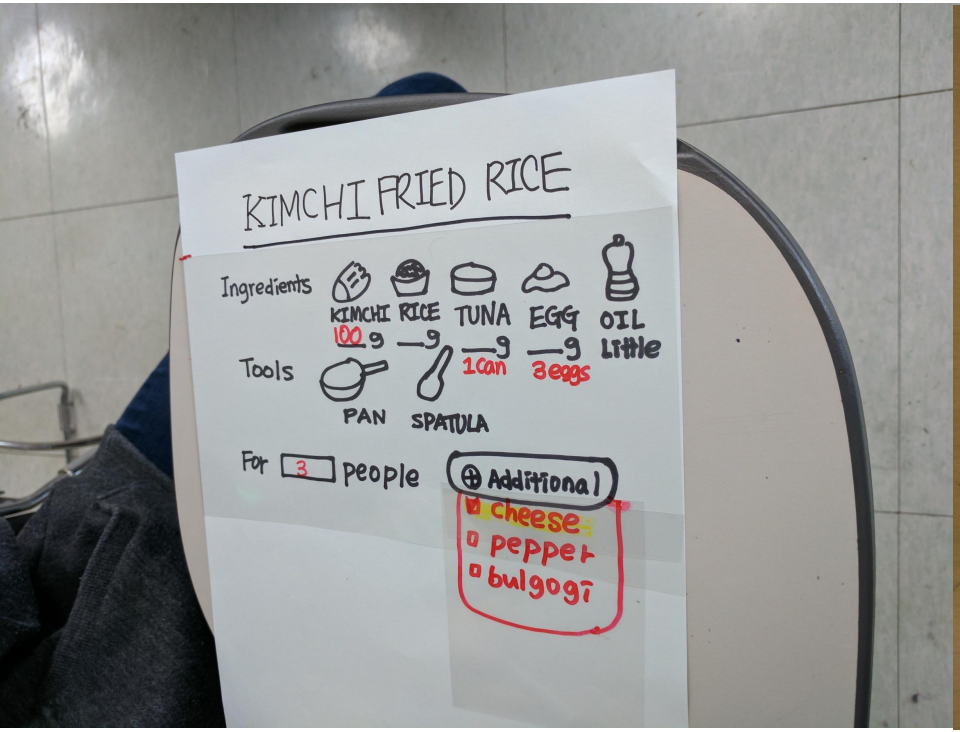
"A representation of a design,
made before the final solution exists."

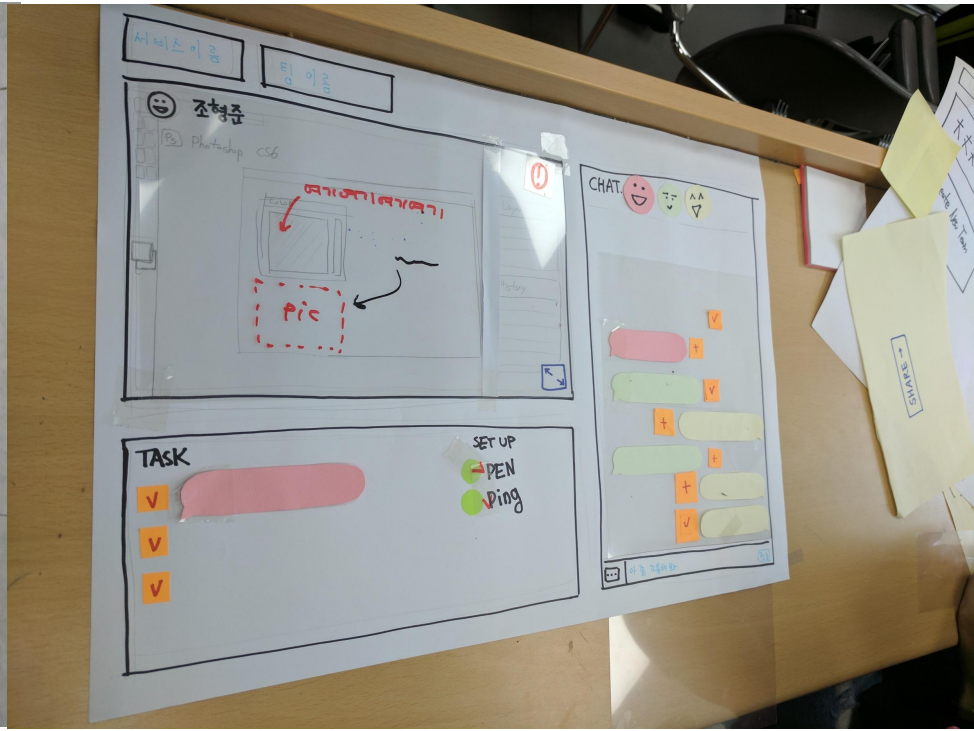
Moggridge, Designing Interactions

PAPER PROTOTYPING

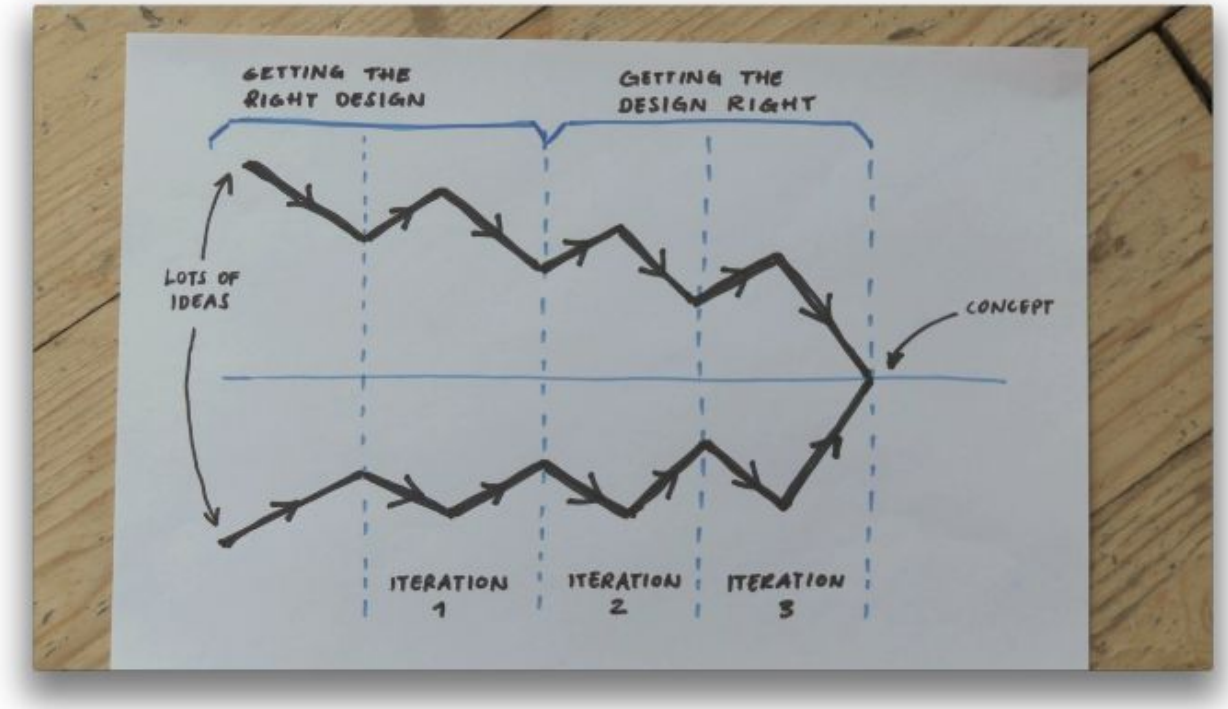


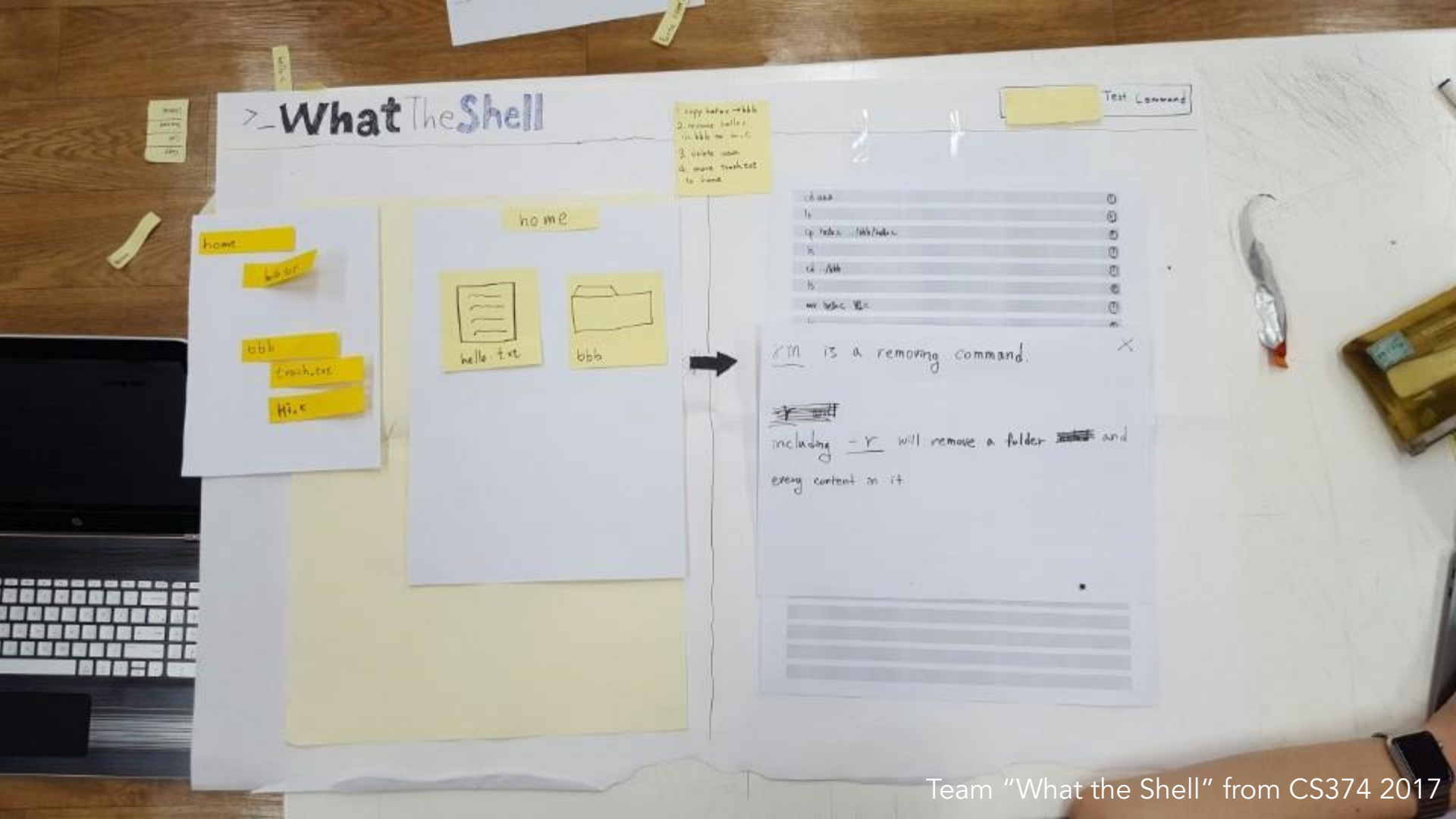



KIMCHI FRIED RICE
Ingredients
KIMCHI
100 g
RICE
— g
TUNA
— g
1can
EGG
— g
3eggs
OIL
little
Tools
PAN
SPATULA
For 3 people
⊕ Additional
cheese
pepper
bulgogi


조형준
Photoshop CS6
Pic
CHAT.
TASK
SET UP
PEN
Ping
SHARE

LOW -> HI-FIDELITY PROTOTYPING





Team “What the Shell” from CS374 2017

home
aaa
README.md

cd aaa	?
cd ..	?

First try

Team “What the Shell” from CS374 2017

>_WhatTheShell

~

~/ Parent Folder

aaa rename_me README.md

Clear History

$ cp -r rename_me aaa ?

$ cd aaa ?

$ cd ~ ?

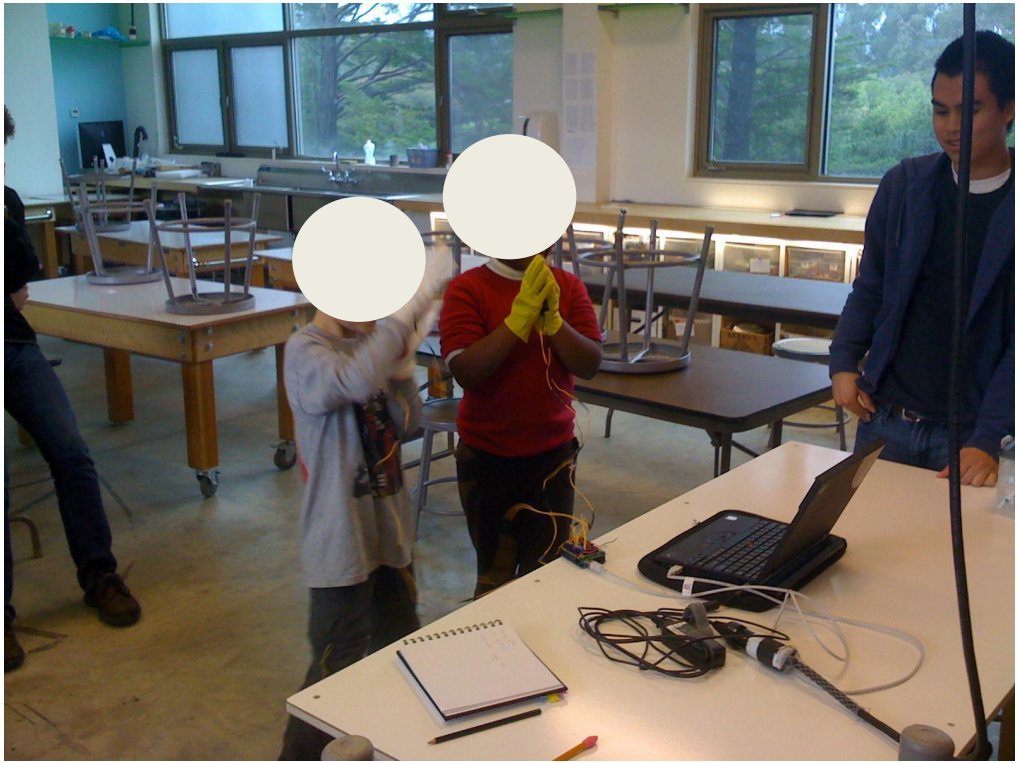
Error aaa is a directory

Try this rm -r aaa

rm aaa

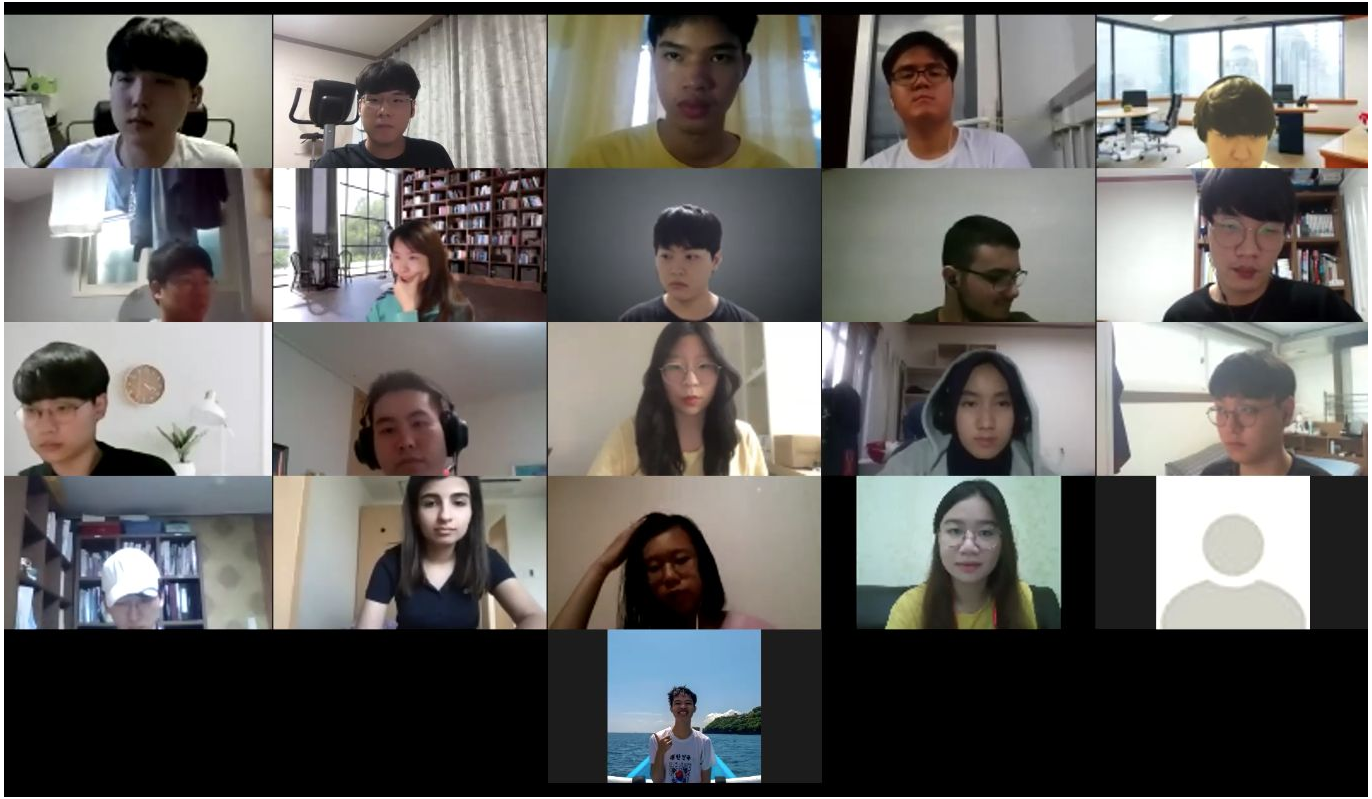
Team “What the Shell” from CS374 2017

USER TESTING

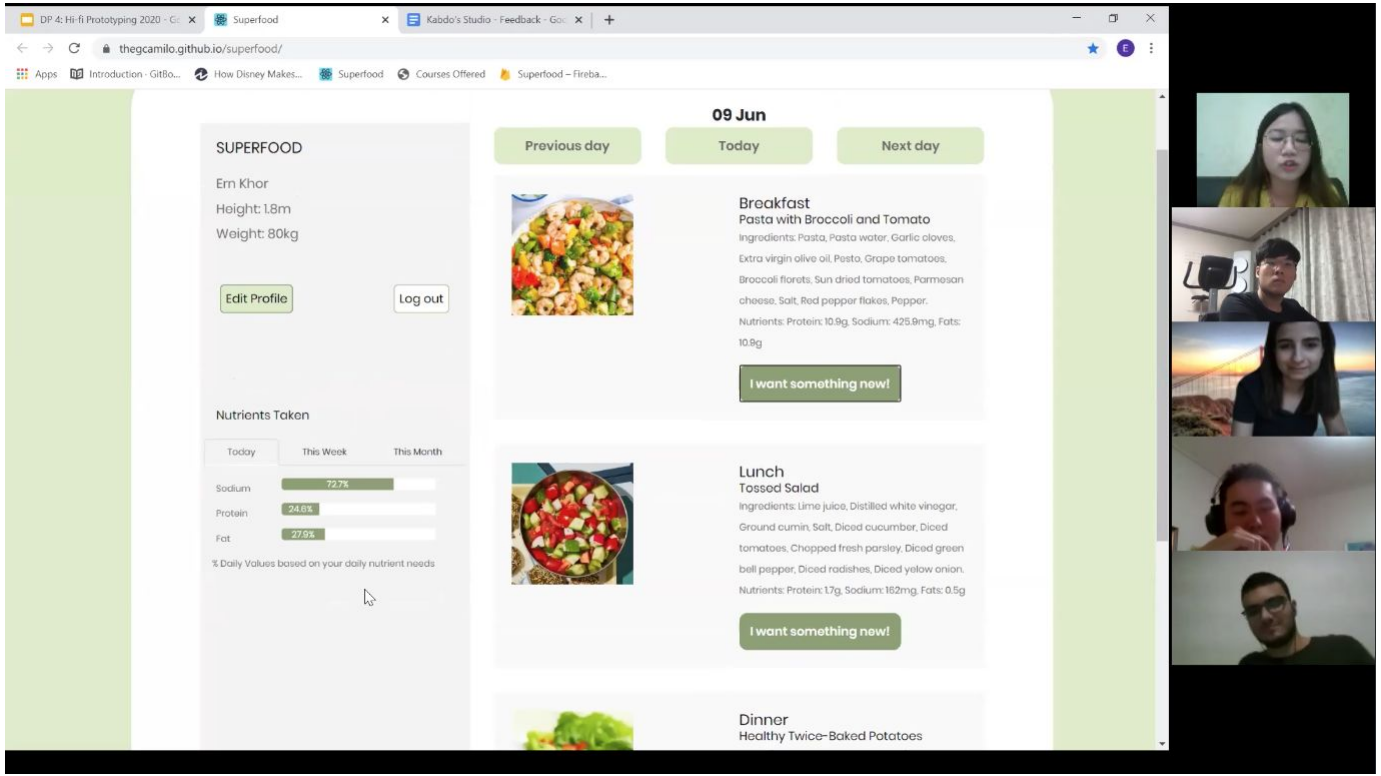


Team CCR, Stanford CS247 Winter 2009

DESIGN STUDIO



DESIGN STUDIO



FINAL PRESENTATIONS


I like
KAIST
DP1 : REORIENTING
OUR INSIGHTS
Self-boarding house's kitchen is not fit to cook.
- narrow, poor at ventilation
Self-boarders have only few cookware.
Too many processes for cleaning up.
- throwing trashes away, washing dishes
Not much chances to eat at home.
Office DEPOT


NEEDS
POV
HMW
User Needs & Problems
From DP1,
- Interviewee C
- Early 30s married man
- Living in the United States of America.
- He cooks breakfast every day together with his wife.
- He wants to cook together with his wife efficiently.
Presentation Order
Creativity & Challenge
KAIST

WHAT YOU'LL LEARN IN CS374

- Design principles
  - learnability, efficiency, safety, human capabilities, ...
- Design techniques
  - contextual inquiry, storyboarding, prototyping, user testing, ...
- Implementation techniques
  - GUI, HTML/JavaScript, output, input, layout, color, typography, ...

How do user interfaces work?

- HTML/CSS/JavaScript
  - No prior knowledge is required.
- How do modern UIs work?
  - Handling input, output, data, interactivity, etc.
- Other implementation topics
  - Layout, color, typography, accessibility, etc.

What is HCI?

Computer system

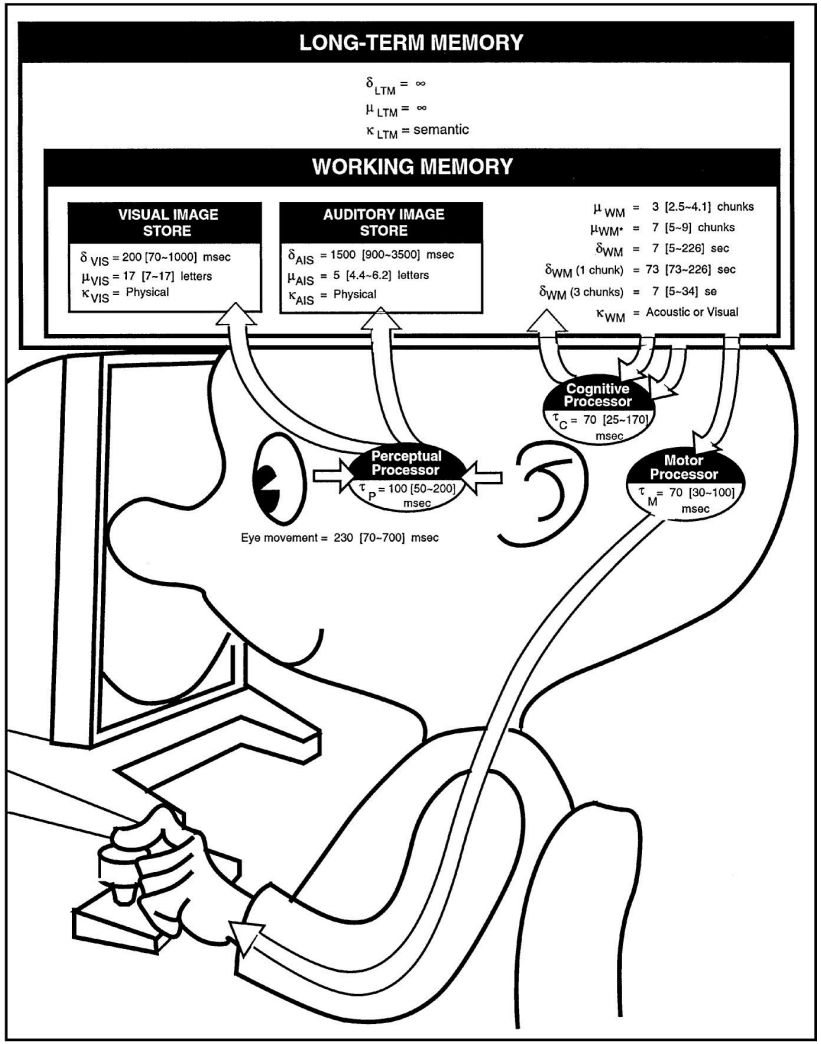
Interaction interface

Human user

XEROX STAR (1981)

bitmapped display
window-based graphical user interface
icons
folders
mouse (two-button)
Ethernet networking
file servers
print servers
e-mail

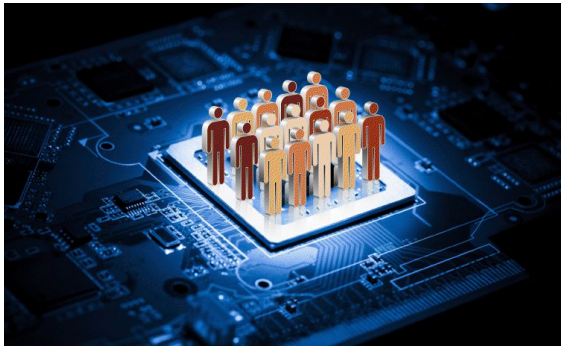
http://www.digibarn.com/collections/systems/xerox-8010/ by Dave Curbow



- Model-driven
- Human factors
- Cognitive science
- Systematic testing
- Formal methods
- Experimental studies

MHP (Model Human Processor)
Card, Moran, Newell, 1983.

- Groupware
- Work-focused
- Collaboration
- Efficient communication
- Productivity tools
- CSCW



- Diverse usage contexts
- Beyond work
- Less purposeful
- Mobile, Ubicomp
- Data-driven
- Mass collaboration
- Crowdsourcing
- Tangible/Physical UIs
- Voice/Gesture UIs
- Intelligent UIs
- AR/VR
- Human-AI Interaction

Apple Inc.,
Image courtesy of Christine Daniloff at MIT,

WHAT DO THESE PEOPLE HAVE IN COMMON?

Google

Notion

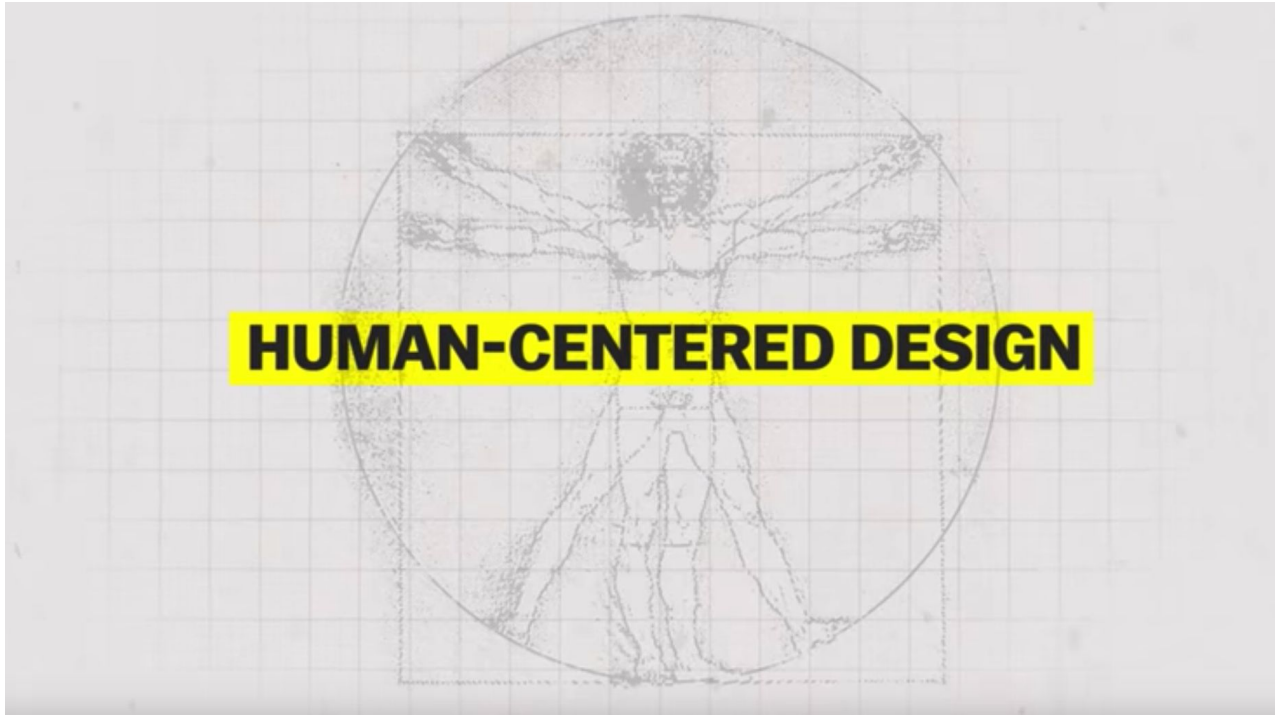
HCI background!

http://www.theverge.com/2013/5/13/4296760/sketching-instagram-co-founder-mike-krieger-reveals-apps-humble-beginnings

Source: Wikimedia Commons by Stansfield PL

Video Break

IT'S NOT YOU. BAD DOORS ARE EVERYWHERE.



https://www.youtube.com/watch?v=yY96hTb8WgI

Course Overview

WHO AM I? PROFESSOR JOSEPH SEERING

- Assistant Professor, KAIST
- Postdoc, Stanford University
- Ph.D., Carnegie Mellon University
- M.S., Carnegie Mellon University
- B.A., Harvard University
- Trust and Safety Consultant

KAIST School of Computing

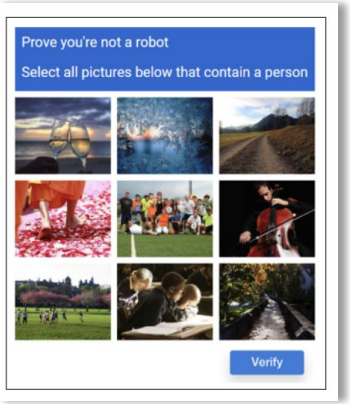
- cstlab.org
- joseph.seering.org

COLLABORATIVE SOCIAL TECHNOLOGIES LAB.

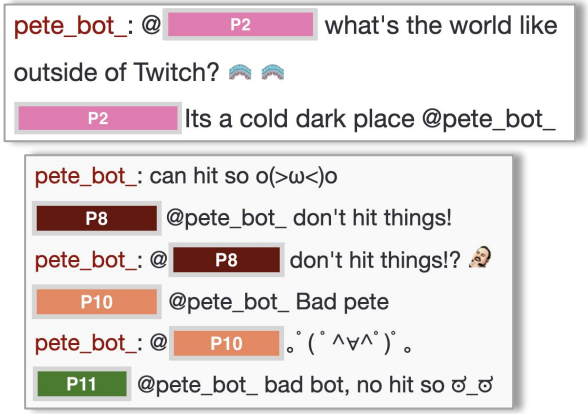
- Research Interests: HCI, Social Computing, “Trust & Safety”

How can we make a social internet that's safer and more trustworthy?

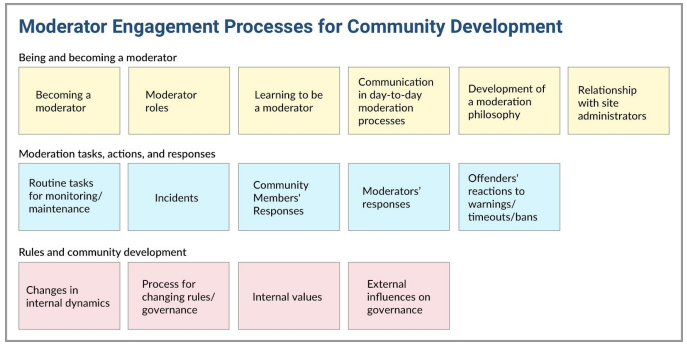
- Can we detect or predict social problems more effectively?
- Can we give users better tools to handle social problems?
- Can we rethink the social media experience to focus on increasing potential benefits rather than reducing harms?



Designing user interface elements for improving commenting behavior



Conversational agents for community development on Twitch



User research on community moderation processes

Socially aware moderation bots For Discord communities

Juhoon Lee

Heechan Lee

AMAZING TAS

LEARNING OBJECTIVE

“You’ll master the skills to design useful and usable interfaces that are carefully catered to users’ needs.”

MINIMAL LECTURE
NO EXAM

IN THIS COURSE, YOU WILL

- DESIGN, BUILD, COLLABORATE
  - Design Project (DP) Milestones
- LISTEN, CRITIQUE
  - TA-led Studio Sessions
- ANALYZE, IMPLEMENT, TEST
  - Homework and Assignments
- EXPERIENCE, PRACTICE
  - In-class Activities: every class
- READ, WATCH
  - Pre-class Material: every class

PROJECT-BASED LEARNING

- You will go through a design process of
  – Needfinding → Ideation → Prototyping → Testing
  THREE times this semester with your own design ideas.

- First time: in one hour (this Thursday) → Workshop
- Second time: in two weeks (week 2-3) → Mini Project
- Third time: in eleven weeks (week 5-15) → Design Project

MINI PROJECT (W2-3)

- You'll work in a team of 4, randomly assigned.
- Topic: Improving remote classroom experience
- No actual implementation is needed.
- A lot of work will be done during class.
- One presentation & short report at the end
- 10% of your total grade

DESIGN PROJECT (W5-15)

- You'll work in a team of 4, with teammates of your choice.
- Topic of your choice, discuss with course staff.
- "Stretch": you're not the target user
- Scope: Figma prototype
  - No actual implementation
- 50% of your total grade

DESIGN PROJECT MILESTONES

- Each milestone from DP1 has a studio session
- [DP0] Week 05: Team Formation
- [DP1] Week 06: Needfinding
- [DP2] Week 07: Ideation
- [DP3] Week 9: Prototyping Round 1
- [DP4] Week 12: Prototyping Round 2 + Heuristic Evaluation
- [DP5] Week 14: Prototyping Round 3 + Usability Testing
- [DP6] Week 15: Project Showcase

DESIGN STUDIO

- Led by TAs
  - *All happening in-class*
- Each team will present for 10 mins & classmates will offer feedback.
- Your team will be randomly assigned a TA mentor.

ASSIGNMENTS

- Individual work
- Light web programming assignments to practice concepts covered in class
- Web programming tutorials will be provided

PARTICIPATION

- In-class
  - Please comment or speak!
  - Contribute your own (incomplete, half-baked) perspective.

- Before/After class
  - Share cool examples, ask and answer questions in Campuswire.
  - Annotate pre-class reading materials on Google docs.

PARTICIPATION MATTERS

- It's a course in which participation actually matters.

- We track your in-class activity, Campuswire, Google docs, and studio participation.

NANOQUIZ

- Simple questions about the pre-class material
- Closed book, closed notes
- 3 minutes

Nanoquiz URL will be here.

0:00

1. What is the course number for Intro to HCI?
(choose one best answer)

A. CS3744
B. CS374
C. CS37
D. CS3

2. Who is the instructor for this course? (choose all good answers)

A. Joseph Seering
B. Don Norman
C. Eunyoung Ko
D. Larry Page

3. How long is a nanoquiz? (choose one best answer)

A. 1 hour
B. 3 minutes
C. 30 seconds

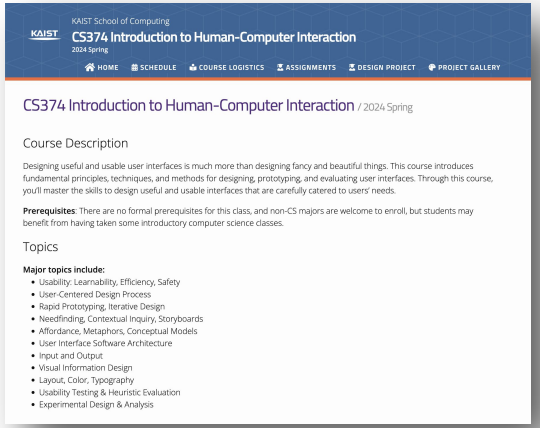
GRADING

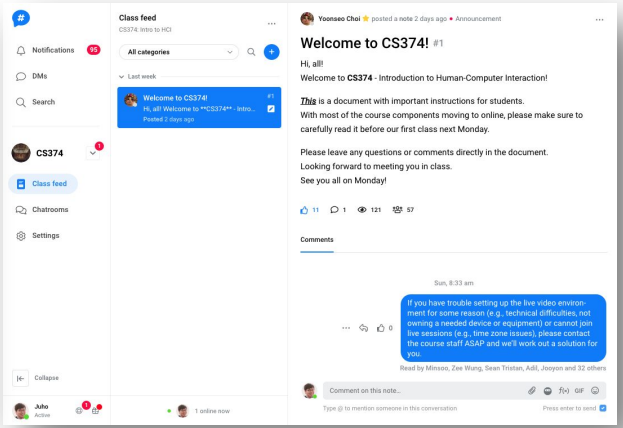
- Design Project: 50%
- Mini Project: 10%
- Assignments: 20%
- Nanoquizzes: 10%
- Class & studio participation: 10%

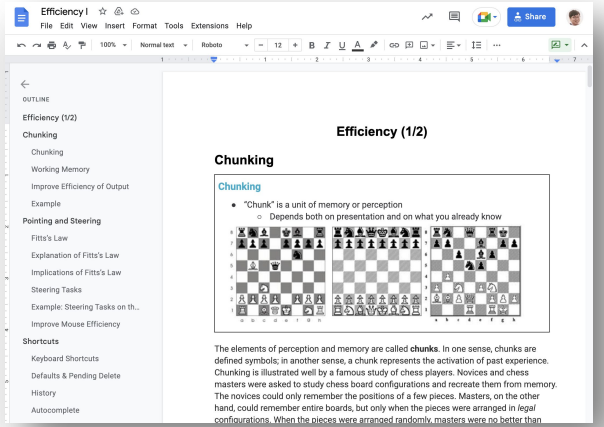
- Grading design artifacts and teamwork is inherently subjective. You'll be rewarded on carefully following the process: survive through the semester & you'll be fine.

COURSE INFRASTRUCTURE

- Website: calendar, assignments, readings
- Campuswire: announcements, discussion, examples, Q&A
- Google Docs: reading materials







ZOOM RULES

- Turn off audio (mute) & turn on video whenever possible.
- Find a quiet place (avoid crowded places like a café).
- Use headphones or earphones.
- Use the Zoom desktop app.
- Emergency communication: chat □ Campuswire □ email

- Use the chat actively! We're monitoring.

ZOOM BREAKOUT ROOMS

- Used for group discussion and activity.
- You will be randomly partnered with classmates.
- Course staff will be lurking in the breakout rooms, so don’t be surprised!

OFFICE HOURS

- Please come to OH to discuss any course-related matters

- Prof. Joseph Seering
  - By appointment. Email in advance.

- TA office hours
  - 8pm Mondays (Walk-ins okay, but better if you email in advance)
  - Contact your studio TA for additional slots.

TAKEAWAYS FROM TODAY

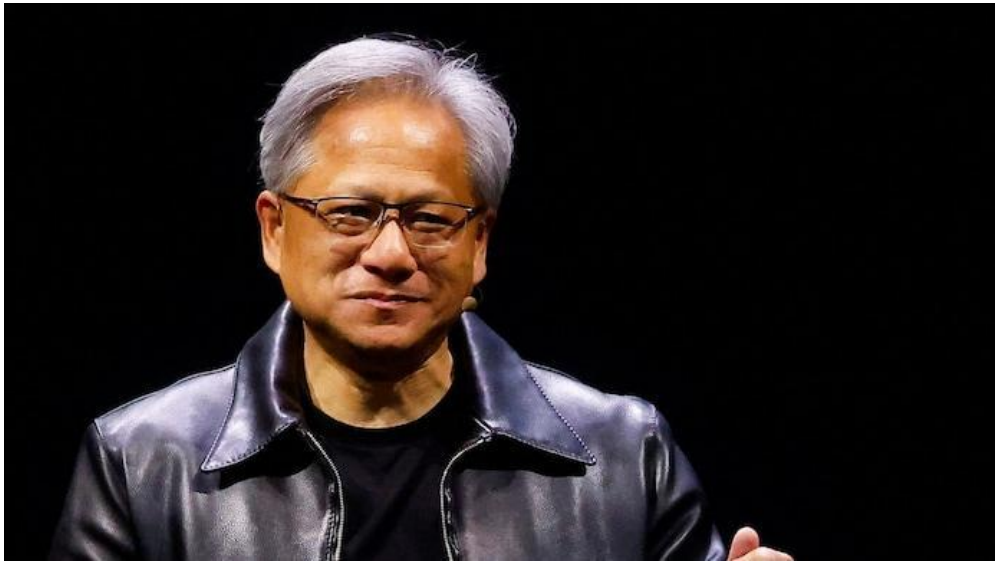
- This course is about user-centered computing, and principles, techniques, & methods for realizing it.

- I want you to succeed and learn.
  - It's not really about evaluating where you are at the end of the course.
  - But you have to do your part: active learning.
  - You have to speak up, otherwise you won't learn.

TODO ITEMS FOR YOU

- Contact course staff if you couldn't access the "Student Instructions" document.
- Course sign-up form NOW
  - You're not officially registered unless you fill this out. Due 3/3 (Mon).
- Visit the course website
  - **hci.cstlab.org**
  - Course updates and materials
- Sign up for course Campuswire
  - All announcements, Q&A, & discussions

Nvidia CEO predicts the death of coding — Jensen Huang says AI will do the work, so kids don't need to learn



UPCOMING

- 2/27 (Thu)
  - Design Thinking Workshop
  - No prep necessary

- 3/4 (Tue)
  - Needfinding #1
  - Do pre-class reading