

HCI design studio

MICHAEL BERNSTEIN
CS247.STANFORD.EDU

Fifteen designs

In which the professor starts class *en media res*

Communicate with a quadrotor drone

Suppose the drone is autonomous, has a camera, projector, mic, & speakers

Generate and sketch out fifteen ideas each

You have five minutes: go!

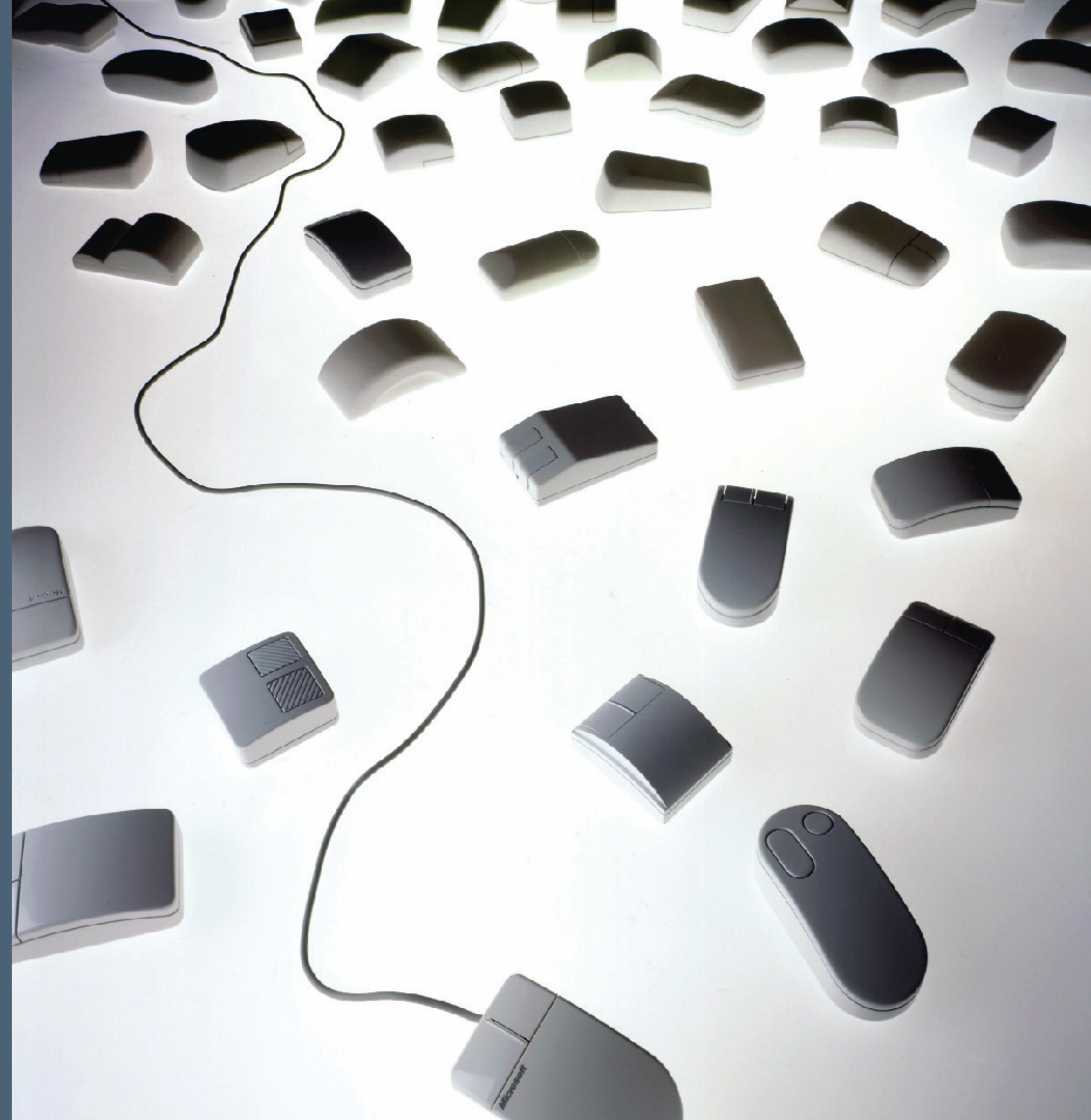


Share your ideas with your table

Show your favorite two ideas
Each table nominates one to share with the class
Your table can't repeat previous tables' ideas

Why CS 247?

- What was challenging about fifteen designs?
 - What if it weren't fifteen ideas? What about thirty? One hundred?
 - Communicating your idea clearly and graphically
- CS 147 black-boxed important parts of the design process



Deliberate practice

Let's talk about why we're here.

Expertise 101

- Expert-level performance is not determined by innate talent.
- But nor is it determined by rote practice.
- Instead, it requires **deliberate practice**.

Ericsson, Krampe, and Tesch-Romer. The Role of Deliberate Practice in the Acquisition of Expert Performance. Psychological Review | 1993.

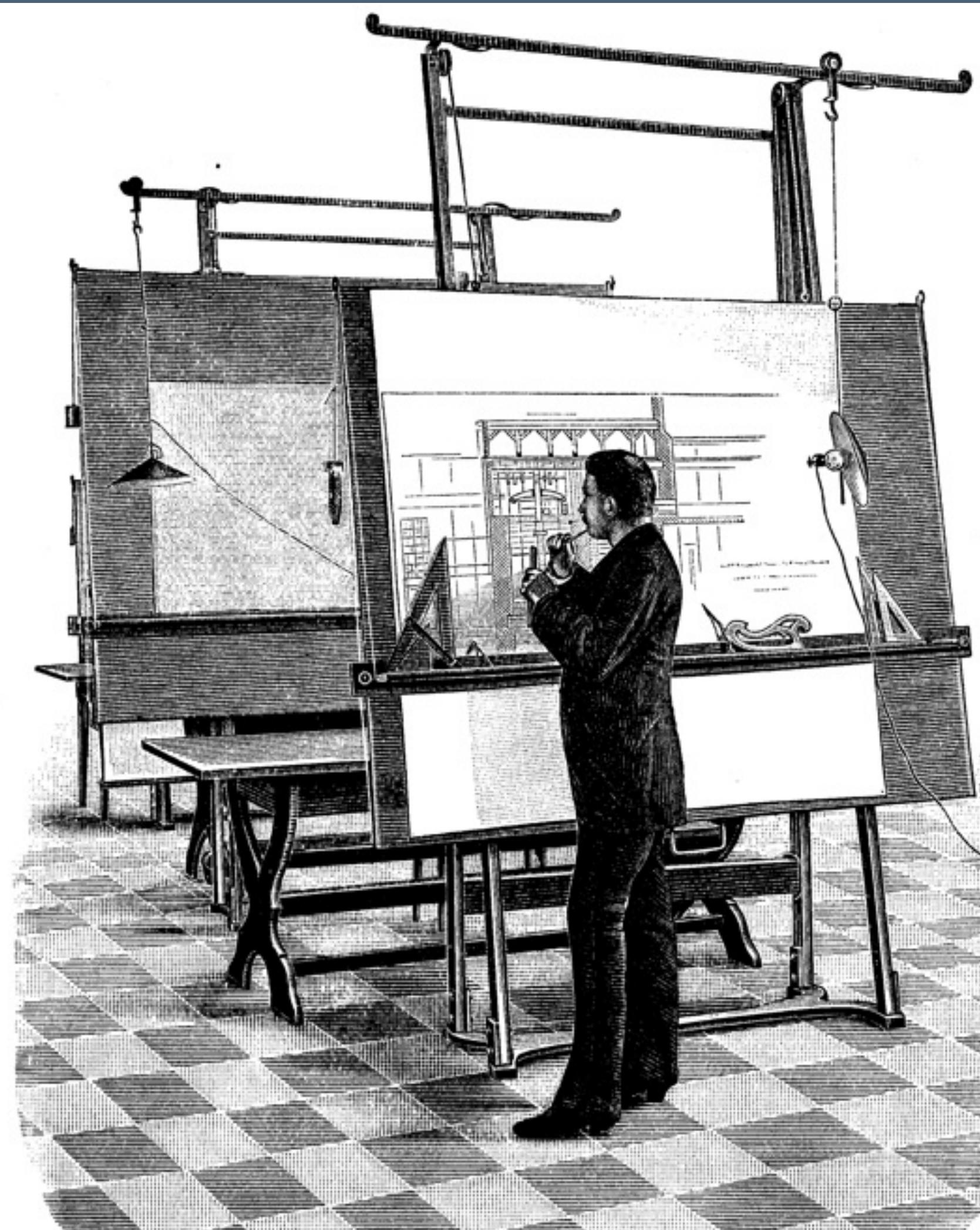
What is deliberate practice?

- Repeated attempts followed by formative assessment and applications of corrective feedback
 - 1. Do it.
 - 2. Assess the quality of the outcome
 - 3. Get feedback on how to improve
 - 4. Do it again, applying the feedback.
 - 5. Do it again.
 - 6. Do it again again.
 - 7. Do it again again again.

In most of CS, feedback is free.

compile error
runtime error
segmentation fault

In design, we use expert critique



- The design studio, popularized by the École des Beaux-Arts in France in the 1800's

Design is subjective.

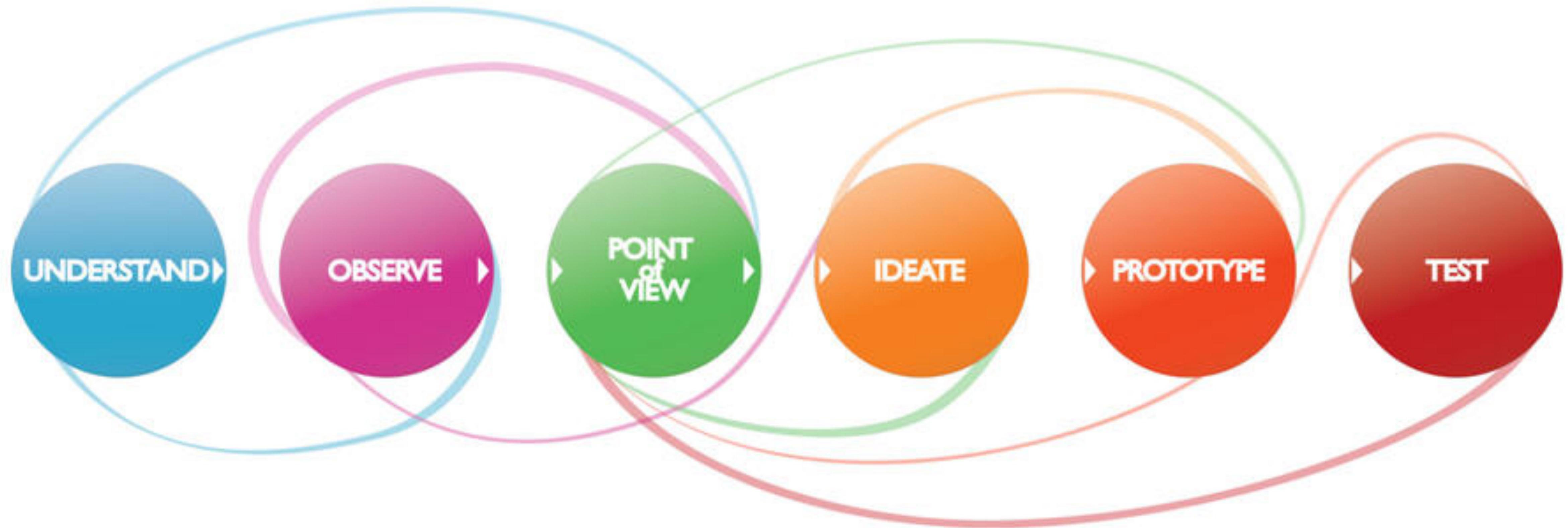
- Critiques will be subjective as well.
- This is why we have the best designers out there as your studio instructors and TAs.
- It is OK to discuss. But acknowledge their years of deliberate practice, experience, and skill.

CS 247

- Deliberate practice in design with expert and professional designers
- Four projects with repeated feedback and iteration from your studio staff
- An opportunity that is unique to Stanford

CS 247

- Advanced techniques for interaction design
 - Act I. Studio
 - Act II. Needfinding
 - Act III. Prototyping
 - Act IV. Interacting



CS 147 overview

CS 247 zoom in

In sum:

- This class is about improving your design skills through deliberate practice.
- You will get repeated feedback twice a week from expert designers. They will push you.
- Iterate based on their feedback and you will learn a lot.

Studios

- Class is split into studios of 15-20 people each
- Each studio is led by a studio instructor and TA
- Studio instructors will lead your critique, feedback and grading

The structure of studio sessions

- You will share, critique, and be critiqued each week as part of your project deliverables
- Design critique: focused feedback to guide your ideation and prototyping process
 - More on this soon
 - This isn't routine feedback: it's guidance intended to push you
 - Ignore critique at your peril

Studios and instructors

a.k.a. character select screen

How to choose a studio

- Do not: choose based on a topic that sounds interesting
 - This has ended poorly for your predecessors
- Do: choose based on the style of feedback and critique that works best for you
 - Supportive?
 - Harsh?
 - Focused on identifying important user needs?
 - Focused on details of interaction design?

Michael Bernstein

- Assistant Professor,
Computer Science



Studio Instructors

- Bob Baxley
 - Apple Director of Design, Pinterest Head of Product Design
- Jofish Kaye
 - Principal Research Scientist at Mozilla, CHI 2016 general chair
- Helena Roeber
 - Created and led Android UX research
- Julie Stanford
 - d.school lecturer and design consultant

Studio Instructors

- Jenn Marlow
 - Research scientist at FXPAL, recent PhD from Carnegie Mellon's HCI Institute
- John Tang
 - Researcher at Microsoft Research, PhD from ME Design group

Project 0: sign up for studio

- Due at midnight tonight, and required in order to take the class
- It's at <http://hci.st/247signup>

Class logistics

Because it wouldn't be the first day of class without them.

Our project rhythm

- Assignments will be due by the start of class (3:30pm)
- Some assignments graded formatively...
 - Points for completing the requirements of the assignment
 - Typically worth fewer points
 - ✓-, ✓, ✓+ feedback to guide your progress
 - Can be redone and resubmitted at the next studio for additional feedback.

Our project rhythm

- Assignments will be due by the start of class (1:30pm)
- Other assignments graded summatively...
 - Traditional rubric-based, graded feedback
 - Worth many more points
- Goal: use the formative assignments to get our advice and feedback in a safe space, so that you can maximize your performance on the summative assignments.

Our project rhythm

- Example:
 - Project II, Part I: **formative**, needfinding observation.
Feedback in class.
 - Project II, Part II: **summative**, go improve and redo
observation.

Four projects

- P1: critique
- P2: needfinding
- P3: prototyping
- P4: interaction

Grading

- Heavily project-based (90%):
 - Project 1: 5%
 - Project 2: 20%
 - Project 3: 25%
 - Project 3: 40%
- Participation (10%):
 - 5% for studio participation
 - 5% for team participation

Attendance

- This class is a studio, where a lot of the learning happens in class through a mixture of lecture, activity, and project work.
- For this to work, attendance is mandatory.
- There are two pre-excused absences allowed — post on Piazza in advance.

Prerequisites

- We expect that you have background in design thinking fundamentals (e.g., CS 147) and web programming ability (e.g., CS 142).
- If you are from a department other than CS, SymSys, and MS&E, let's talk. We want a diverse classroom.

Materials

- Buy a sketchbook and thick pen.
- Make sure you can easily tear out pages.
- This is required as part of P2. Get it today, use it tomorrow. Bring it to every class.
- Stanford Bookstore,
Amazon Student Prime,
art store on California Ave



Questions?

Ans: 42

Critique

It's the new fashion line from Mugatu

Why critique?

- Nudge a designer out of an unproductive design space
- Help a designer see the bigger picture, then restart their brainstorming
- Train a designer to better evaluate their own ideas

A critic vs. a critique

- Critique is an open-ended process that is intended to push the designer to be even better.
- Being critical (e.g., being mean, or attacking the idea) does not serve that goal. It shuts people down.
- Your goal: give the designer an “aha!” moment about their own idea.

Getting critiqued

Set the stage, but briefly

- Tell everyone your design goals before you describe your project.
- Don't give a feature tour, focus on a user's experience.
- Be quick. The more you say, the less feedback you get.

A problem statement

- I am showing [early/mid/late] work
- Around [the problem]
- Because [why it's a problem]
- And am looking for feedback around [specific focus for feedback]
- I am not looking for feedback yet on [things you have not thought about yet]

Breathe.

- Your goal is not to defend your idea.
- Your goal is to understand the feedback, and why people are reacting the way they are. Use this information to improve your design.
- Or do you really think that your design is the best possible idea in the world, and can't be improved?

Write it down.

- Dedicate a team member or a friend (if a solo project) to be the notetaker.
- You want to focus your energies on being a part of the conversation, not on trying to remember everything.

Sharing critique

What should I say?

- Match your feedback to the design goals. Is this assignment focusing on usability, aesthetics, needs, or idea generation?
- Good heuristics:
 - Can I see a nearby point in the design space that gets more to the core of the problem?
 - Did the designer make assumptions that should be questioned?
 - Is the designer fixated on a part of their design that isn't as crucial to the design goal?

Example: getting to the core

- Suppose the designer was exploring ways to help parents calm down crying children at the supermarket.
- “What if you focused not on how the parents deal with whining kids, but with what made the kids upset in the first place?”

Example: question assumptions

- “Do you have evidence that the parents actually want to quiet down their kids? Maybe they just want to get in and out quickly to minimize the pain to everyone else, and trying to fix it will only prolong things.”
- “Are you sure that the parent can get out their iPhone to use your solution? Don’t they often have a kid in one arm and holding the hand of another one? I’ve never seen a parent staring at a phone in the market.”

Example: questioning fixation

- “The interaction design for the touch interface is really beautiful. I wish you had focused on verifying the design approach first. A beautiful interaction is lost on a design that doesn’t solve a need.”

Always suggest a better path

- One of the best scripts for a critique comment is:
“I really like [an aspect of the design].
It can be even better.
And here’s how: [suggestion].”

“I like”, “I wish”

This week, try starting your comments explicitly with these phrases.

Project I

Crit

- Goal: exercise your crit skills
- Critique two interfaces, one yours and one someone else's
- Due Friday
 - Bring zoomed-in printouts to class on Friday
- Much more at cs247.stanford.edu

Studio time

Practice critiques