

CS 147 Introduction & Course Overview

Design Thinking for User Experience Design, Prototyping & Evaluation

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2024

September 23, 2024

Hall of Fame or Shame?



weather.com

Search City or Zip Code

54° Meiringen, Bern, ... 65° Denver, CO 51° Tahoe City, CA

Today Hourly 10 Day Monthly Weekend Radar

TOP STORY
ON OUR RADAR

Keeping An Eye On Still Active Atlantic

El Niño: How The First In 4 Years Could Impact You

5 Changes To Expect From The Weather This Fall

Severe Turbulence Injures Passengers On JetBlue Flight

Last Dance With Harvest Moon This Week — 2023's Final Supermoon

Hurricane Tracker

Tropical Storm Philippe
Sep 27, 5:00 am

Max Winds **45 mph** Movement **W at 12 mph** Pressure **1003 mb**

Web Notifications

Get breaking news delivered straight to your browser from The Weather Channel.

Get Notifications No, Thanks

weather.com

Hall of Shame!



weather.com

Need to click for weather

What is the “first read”?

videos

popups/ads

not my local weather!

It used to be worse!

Hall of Fame or Shame?



The screenshot shows the Yahoo! weather page for Stanford, United States. The current temperature is 62°F (16°C) with a 'Mostly Clear' condition. The forecast for the next six days is as follows:

Day	Icon	High	Low	Humidity
Tuesday	Cloudy	79°	56°	32%
Wednesday	Sunny	79°	54°	0%
Thursday	Cloudy	77°	55°	0%
Friday	Cloudy	74°	57°	4%
Saturday	Cloudy	69°	52°	4%

The 'Details' section shows: RealFeel® 62°, Humidity 76%, Visibility 9.01 miles, and UV Index 0 (Low). The page also includes a 'Forecast' section with hourly temperatures and a 'Details' section with weather icons and conditions.

weather.yahoo.com

Hall of Fame!



The screenshot shows the Yahoo! weather website for Stanford, CA. The page layout includes a navigation bar at the top with links for HOME, MAIL, NEWS, FINANCE, SPORTS, ENTERTAINMENT, LIFE, SEARCH, SHOPPING, YAHOO PLUS, and MORE... Below the navigation bar is the Yahoo! logo and a search bar. The main content area features a large weather forecast for Stanford, CA, with a temperature of 62°F and a 'Mostly Clear' condition. A sidebar on the left lists 'My Locations' and 'Around the World' with various cities. The bottom section contains a 'Forecast' table and a 'Details' section with weather icons and text.

Day	Icon	High	Low	Humidity
Tuesday	☁	79°	56°	32%
Wednesday	☀	79°	54°	0%
Thursday	☁	77°	55°	0%
Friday	☁	74°	57°	4%
Saturday	☁	69°	52°	4%

Detail	Value
RealFeel®	62°
Humidity	76%
Visibility	9.01 miles
UV Index	0 (Low)

weather.yahoo.com

Good!

aesthetic

clean typography & icons

Bad!

image is 1st read

too much empty space!

Hall of Fame or Shame?



Microsoft Bing

weather

SEARCH CHAT NEWS IMAGES VIDEOS MAPS SHOPPING MORE TOOLS

About 135,000,000 results

Stanford, CA
Updated a few minutes ago

UV index
No forecast

Light breeze
6 MPH, E

Sunrise
06:59 AM

Sunset
06:59 PM

Clear · Tue 26, 11:02 PM

12 AM 3 AM 6 AM 9 AM 12 PM 3 PM 6 PM 9 PM

Tue 26	Wed 27	Thu 28	Fri 29	Sat 30	Sun 1	Mon 2	Tue 3	Wed 4
78° 53°	78° 52°	78° 53°	71° 56°	67° 52°	72° 49°	74° 50°	78° 52°	80° 55°

56° 55° 53° 61° 73° 78° 71° 61°

12 AM 3 AM 6 AM 9 PM

See more

The Weather Channel

bing.com/weather

Hall of Fame!



Microsoft Bing

weather

SEARCH CHAT NEWS IMAGES VIDEOS MAPS SHOPPING MORE TOOLS

About 135,000,000 results

Stanford, CA
Updated a few minutes ago

UV index
No forecast

Light breeze
6 MPH, E

Sunrise
06:59 AM

Sunset
06:59 PM

57 °F 78°
53°

Precipitation: 1%
Wind: 6 MPH
Humidity: 82%

Clear · Tue 26, 11:02 PM

12 AM 3 AM 6 AM 9 AM 12 PM 3 PM 6 PM 9 PM

Clear in Stanford

Activities

Trending outdoor accessories

UV protective wear

Day	Icon	High	Low
Tue 26	Moon	78°	53°
Wed 27	Sun	78°	52°
Thu 28	Sun	78°	53°
Fri 29	Cloud	71°	56°
Sat 30	Cloud	67°	52°
Sun 1	Sun	72°	49°
Mon 2	Sun	74°	50°
Tue 3	Sun	78°	52°
Wed 4	Sun	80°	55°

56° 55° 53° 61° 73° 78° 71° 61°

12 AM 3 AM 6 AM 9 PM

See more

The Weather Channel

bing.com/weather

Good!

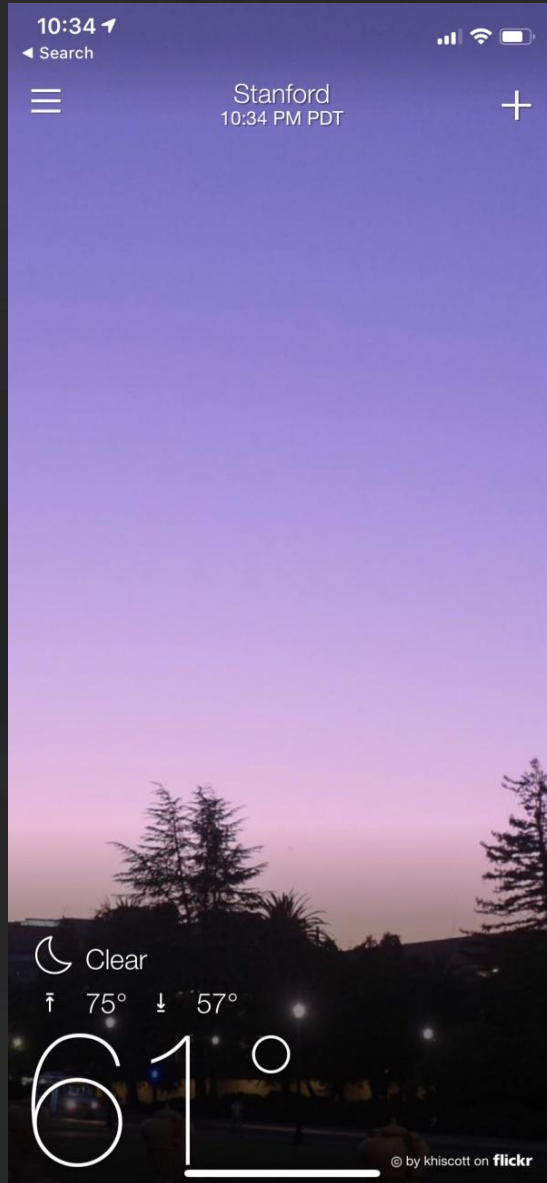
less clutter

eye drawn to current temp

Bad?

maybe a little boring...

Hall of Fame!



iOS yahoo weather

Good!

aesthetic

clean typography & icons
(new version not as nice)

image recedes to
background w/ flick or tap

CS 147 Introduction & Course Overview

Design Thinking for User Experience Design, Prototyping & Evaluation

Prof. James A. Landay
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Stanford University

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September 23, 2024



Who are We?



James Landay

he/him

- Professor in Computer Science at Stanford
- Co-Director of Stanford Institute for Human-Centered AI
 - formerly at Cornell Tech, University of Washington, & UC Berkeley
 - spent 3 years as Director of Intel Labs Seattle
- PhD in CS from Carnegie Mellon '96
- HCI w/ focus on ubiquitous computing, web design (tools, patterns, etc.), HAI
- Founded NetRaker, 1st in web experience management (sold to Keynote)
- Co-authored *The Design of Sites* with Doug van Duyne & Jason Hong
- Office Hours: TBD (390 Gates) or by appointment (slack me)
- Email: landay@[insert usual Stanford email domain]



Shardul Sapkota

he/him

- CS PhD
- Math, CS, and Stats Bachelor's at Yale-NUS
- HCI with a focus on designing sensing systems and interfaces for health
- I love soccer and playing the guitar!!
- **Office Hours:** Tue 4:15 - 5:15 PM (386 Gates) or by appointment

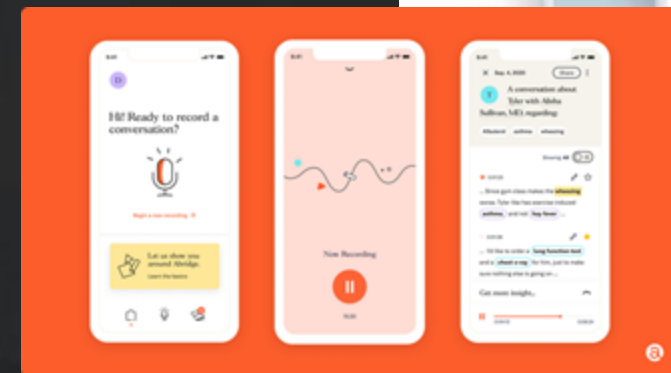
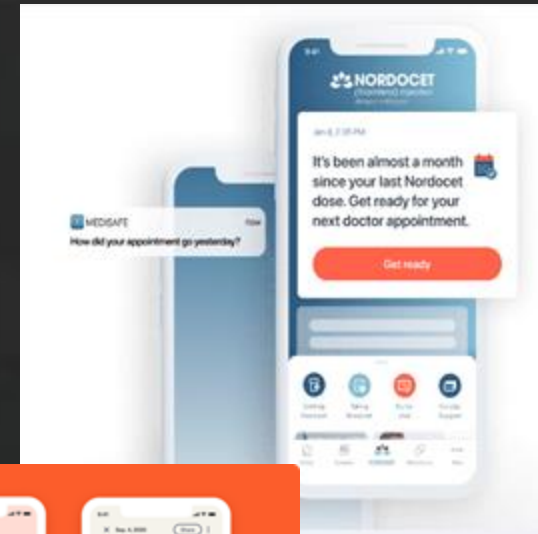
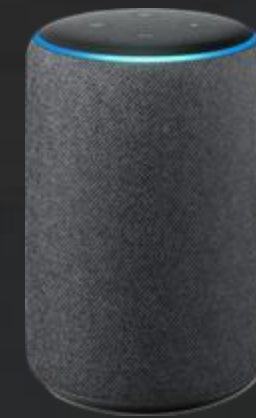
Designing AI for Older Adults

As the global life expectancy rises, the World Health Organization estimates that the older adult population will nearly double by 2050. **Aging** introduces unique challenges, often **leading to inequitable access to resources and technology**, highlighting the growing need to support older adults. Designing for older adults requires a deep understanding of their needs and empowering them through solutions that address these needs.

While AI tools have been transformative for many, the needs of marginalized groups—especially older adults, who stand to benefit greatly from this technology—are often overlooked. In this studio, we will explore ways to develop **accessible and inclusive AI tools that enrich the lives of older adults.**

Studio Thu 4:30-6:20PM

Examples: Voice Assistants, [Medisafe](#), [Abridge](#)





Defne Genç

she/her

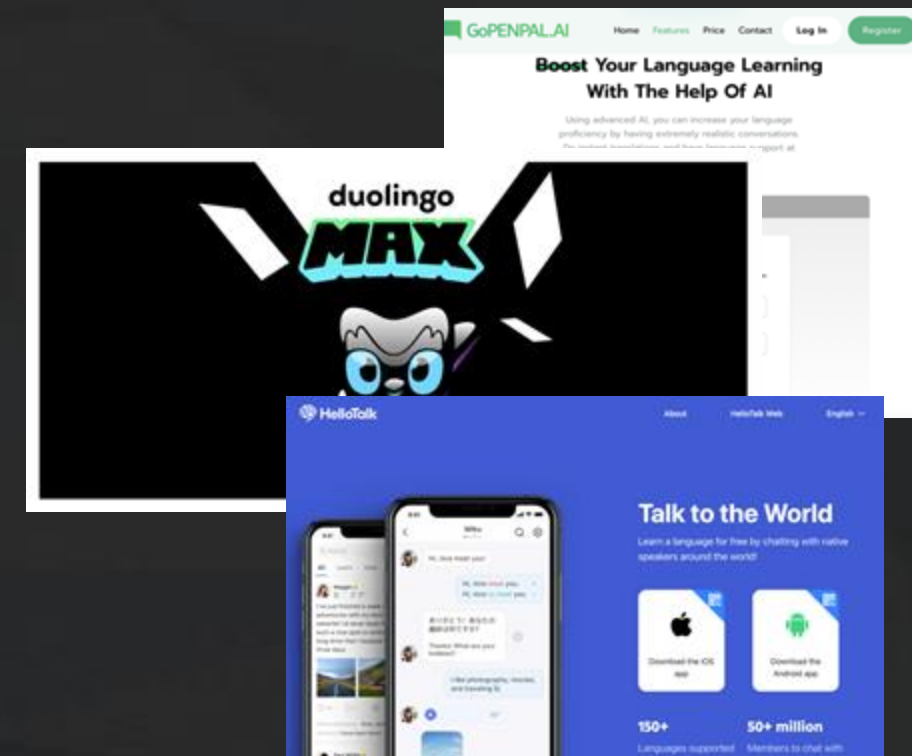
- B.S. Symbolic Systems
- M.S. Computer Science (HCI)
- Interested in research for behaviour change, human-AI interaction
- Love specialty coffee and cooking!
- **Office Hours:** Tue 09:00 -10:30 AM (Old Union) or by appointment

Transforming Language Learning with AI

Mastering a new language opens doors to different cultures and experiences, but traditional learning methods can be **tedious and uninspiring**. In this studio, we'll explore how **AI** can revolutionize **language acquisition and practice**.

How can we leverage AI to create **personalized learning experiences**, provide instant feedback, or simulate immersive language environments? What **innovative interfaces** can make language learning **accessible** and **motivate diverse learners**? How might we use AI to craft interactive storytelling or gamified learning that adapts to each user's progress and interests?

Studio Friday 1:30-3:20PM
Examples: Duolingo Max, Babbel, Influent, HelloTalk, GoPenPal... but you can be creative!





Gray Wong

Any pronouns

- B.S. Symbolic Systems (HCI)
- M.S. Computer Science (HCI)
- Interested in technology in education, art, and interactive media
- Come talk to me about digital art and/or baking!
- **Office Hours:** Mon 11:30 AM -12:30 PM ([Zoom](#)) or by appointment

Technology for Mental Health

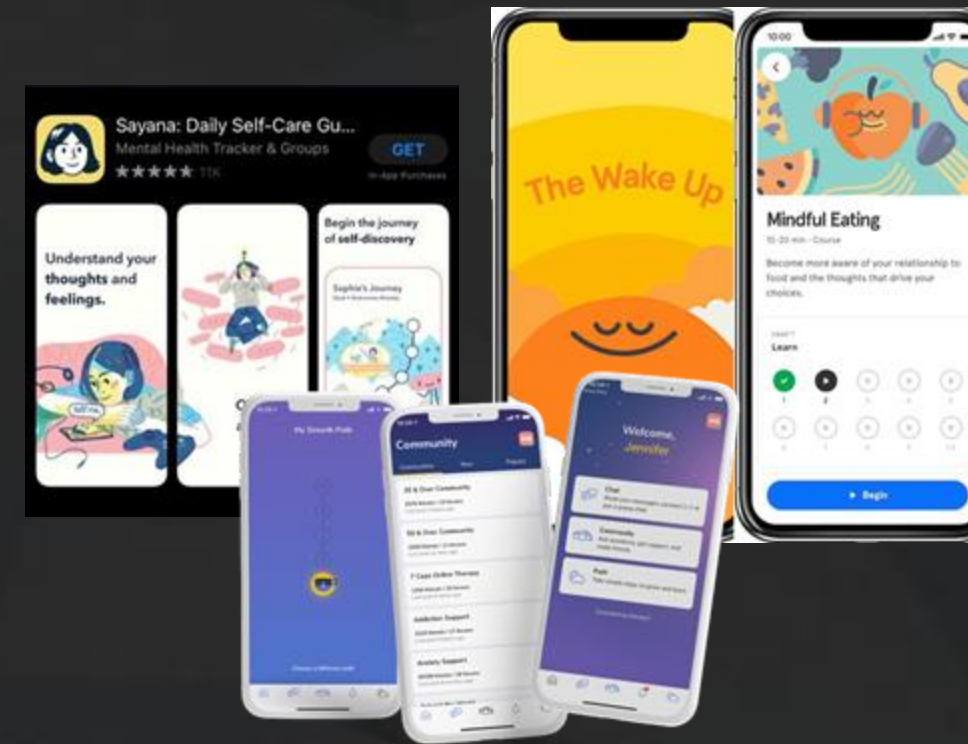
Digital platforms and services have long been peddled as easy, pain-free solutions to our problems, even for things like **well-being** and **mental health**. However, such solutions are particularly infamous for **predatory and manipulative design practices** in order to drive profit, such as increasing **reliance** on the platform, locking materials behind **paywalls**, and more.

How can we ensure that technology for mental health remains **ethical**? How can we safeguard against exploiting users for profit? Why is a shift toward **mindful, user-first design** so crucial? This studio will dive into the intricacies of designing for mental health and wellness to **truly benefit users**, instead of taking advantage of them.

Studio

Friday 11:30AM-1:20PM

Friday 2:30-4:20PM



Examples: Headspace, MindDoc, Sayana, 7 Cups, ELIZA



Paige Olson

she/her

- B.S. Symbolic Systems (Human Centered AI)
- M.S. Computer Science (HCI)
- Interested in design for health and behavior change
- **Office Hours:** Tue 10:00 -11:00 AM ([Zoom](#)) or by appointment ([Calendly](#))

Design for Healthy Behaviors

Healthy lifestyle choices are crucial for reducing the risk of chronic disease and promoting well-being. Yet, many struggle to **maintain healthy behaviors** such as balanced nutrition, regular physical activity, stress management, and adequate sleep.

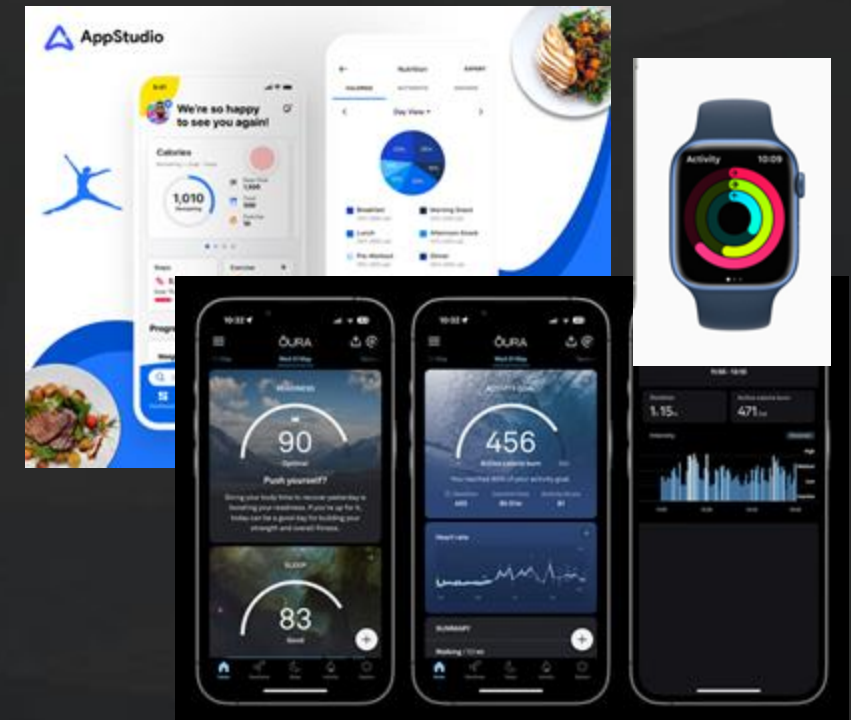
In this studio, we will explore how to design digital tools that promote healthy behaviors. How can **AI be integrated to provide tailored recommendations** based on a user's unique health data, habits, and goals? How can we empower users to take control of their health through sustainable lifestyle changes? How can we ensure **AI-driven health tools are both accessible and trustworthy**? How can we use digital tools for preventive care?

Studio

Friday 9:30-11:20 AM

Friday 1:30-3:20 PM

Examples: Oura, FitBit, Apple Health, Whoop, MyFitnessPal,





Britney Tran

she/her

- B.S. Computer Science (HCI)
- M.S. Computer Science (HCI)
- Interested in intersection of social justice & technology
- Bullet journaling/hiking!
- **Office Hours:** Thur 10:30 -11:30 AM [Zoom](#) or by appointment

Designing for Job Accessibility & Career Development

Finding a job often comes with many challenges, whether it's short-term or long-term, a career stepping stone or side gig, entry-level or senior-level. Though a source of income is critical for survival, **securing an offer can be difficult for anyone** of any age or level of experience. At times, personal circumstances influenced by **systemic barriers** may contribute to difficulty in finding a job such as completed education, language barriers, and criminal record.

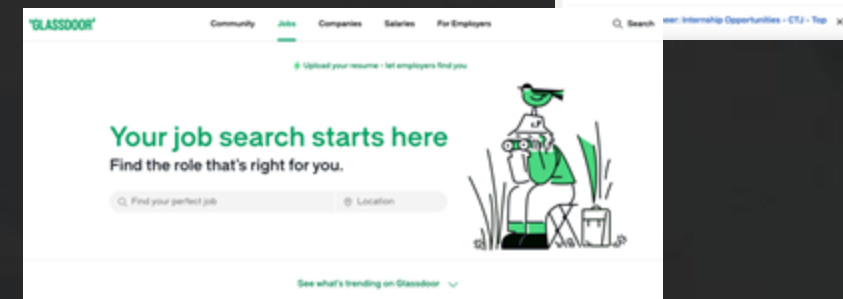
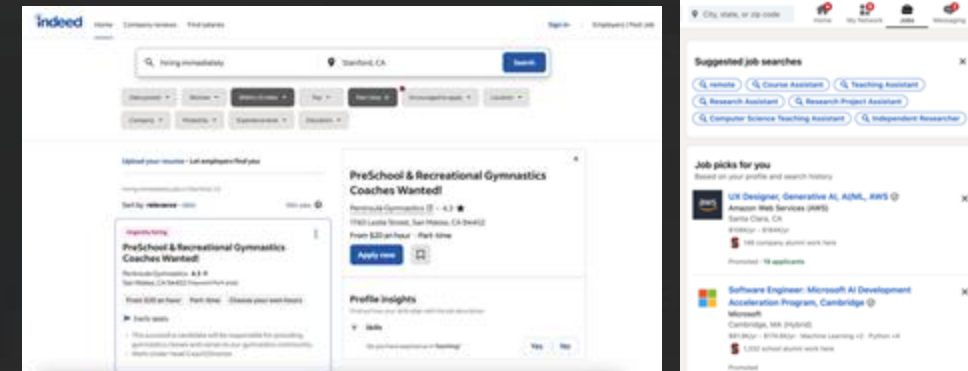
In this studio, we will explore ways to address the challenges of job searching and career development. How can we make the job searching process less strenuous? How can we make job searching less daunting for first-timers? **How can we make job searching and job boards more accessible to marginalized communities? How can we use AI coaches to help people improve their job prospects and their careers?**

Studio

Friday 10:30AM-12:20PM

Friday 12:30-2:20PM

Examples: Indeed, Glassdoor, Facebook, Craigslist, LinkedIn





Star Doby

she/her

- B.S. Computer Science (HCI)
- M.S. Computer Science (HCI)
- Interested in education technology (organizational & for learning)
- 2nd time CA'ing this class :)
- **Office Hours:** Tues 3:30 - 4:30 PM [Zoom](#) or by appointment

AI in the Classroom

Has a digital tool ever enhanced or disrupted your classroom experience? Think of how Ed Discussion, Canvas, or other classroom tools have shaped your education thus far.

Technology has played a big role in 21st century education systems by **meditating how we learn**; how we **interact** with teachers and other students; how we are **evaluated** and graded on our work; and what **feedback** we receive from our peers.

Can we use AI to enhance **classroom organization**, **learning**, and/or **evaluation**? In this design studio, we will focus on how digital design can make **tangible differences in the classroom**, while navigating the limitations of AI.

Studio

Fri 12:30 - 2:20 PM

Fri 2:30 - 4:20 PM

Examples: *Canvas, Gradescope, Ed Discussion, Google Classroom, Bluebook, Carta, Simple Enroll, Stanford LaIR, Paperless*





Eli Waldman

he/him

- B.S. Symbolic Systems
- M.S. Computer Science (HCI)
- Interested in designing for motivation, organization, and health
- **Office Hours:** Wed 10:00 - 11:00 AM [Zoom](#) or by appointment

Designing for Movement

Movement is a fundamental part of daily life, whether it's **people** traveling, **objects** being delivered, or **locations** being navigated.

In this studio, we'll explore how artificial intelligence enhances our experiences of movement, from aiding decision-making to improving user interactions in various domains. Whether you're navigating new environments, organizing logistics for a big move, or keeping track of an important delivery, **AI** plays a role in **smoothing these processes**. We'll focus on how people engage with **digital tools** that assist in movement and create new solutions for enhancing these interactions.

Studio

Thu 6:00 - 7:50PM

Fri 8:30 - 10:20AM

Examples: [Waymo](#), [irobot](#),
[Amazon go](#), [Tesla Bot](#)



Join our Slack!

cs147-2024au.slack.com

What Do You Hope to Learn in CS147?

Put a few key phrases in the #lecture slack channel

* if you aren't in our cs147 slack grid, direct message Paige (paige24@stanford.edu)

** For all **during** lecture activities & questions use the #lecture slack channel so we can see them.
For questions **outside** of lecture time, use the #q-and-a channel.

Outline

- *Who are we?*
- AI & User experience design
- Balancing design thinking & technology
- Design discovery & exploring ideas
- Rapid prototyping & evaluation
- Goals of the course
- Course format & schedule
- Course policies

AI Needs User Experience (UX) Design



- Tesla Model S “Autopilot”
- Future of autonomous cars
- How do we design the UX?

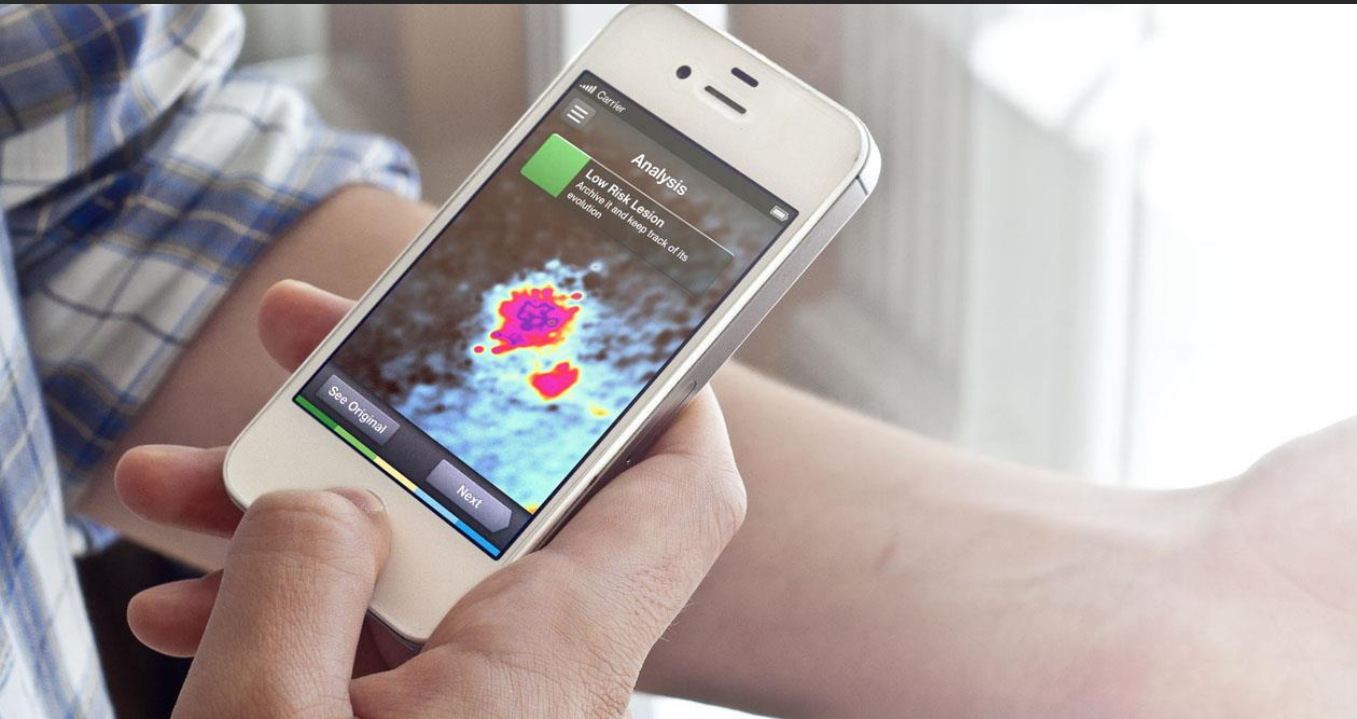


AI Needs User Experience (UX) Design



- Amazon Echo, Google Home & other Smart Speakers use Voice UI
- How do we design them to deal with natural human conversation?
- How do we design to support multimodal input? (e.g., + screen or vision)

AI Needs User Experience (UX) Design



Computer vision-based skin cancer detection getting better and better

- What is appropriate to show a patient?
- What should be the interface for the doctor?
- Is there a set of design patterns for these Smart UIs?

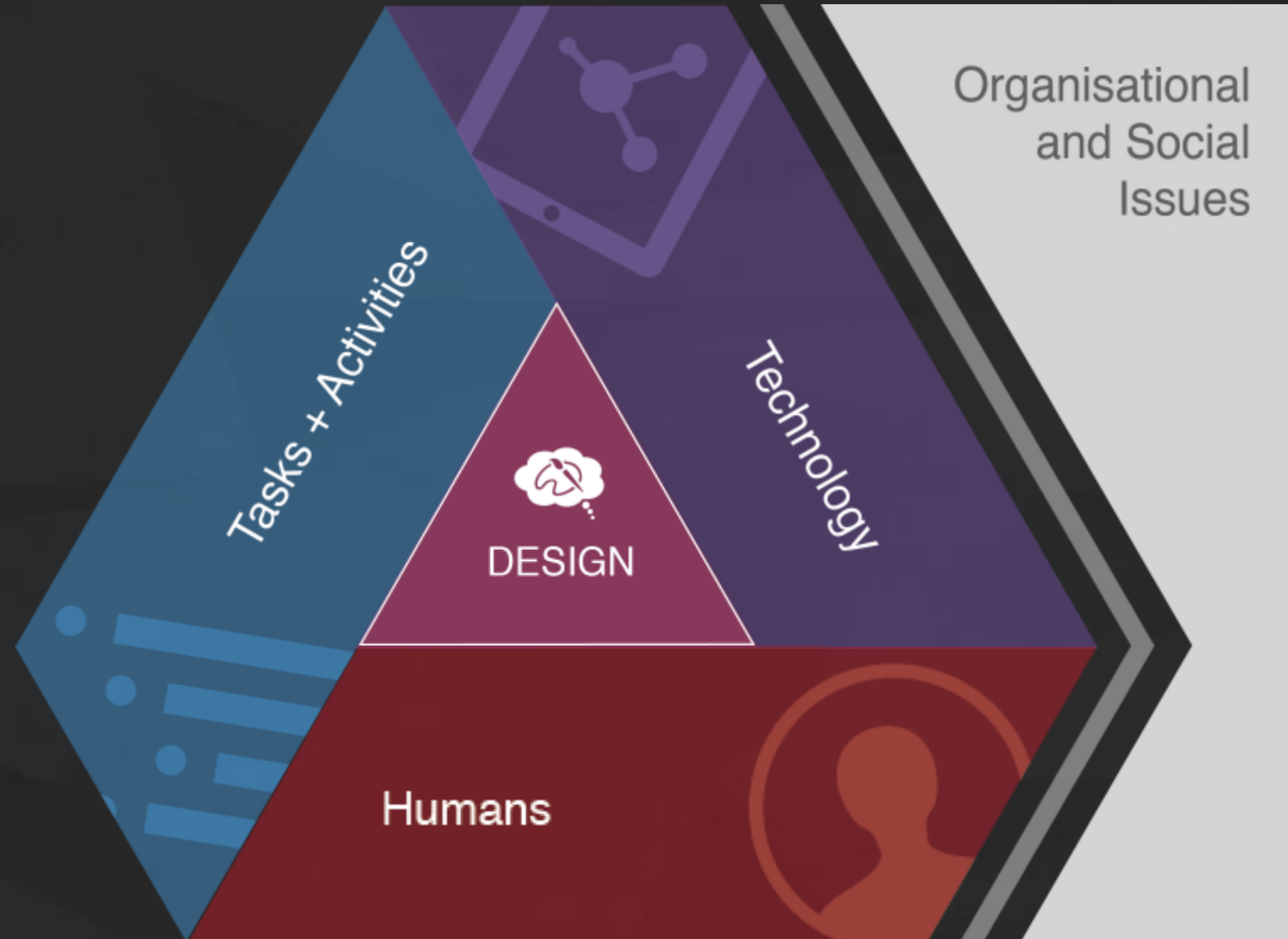
Balance

DESIGN

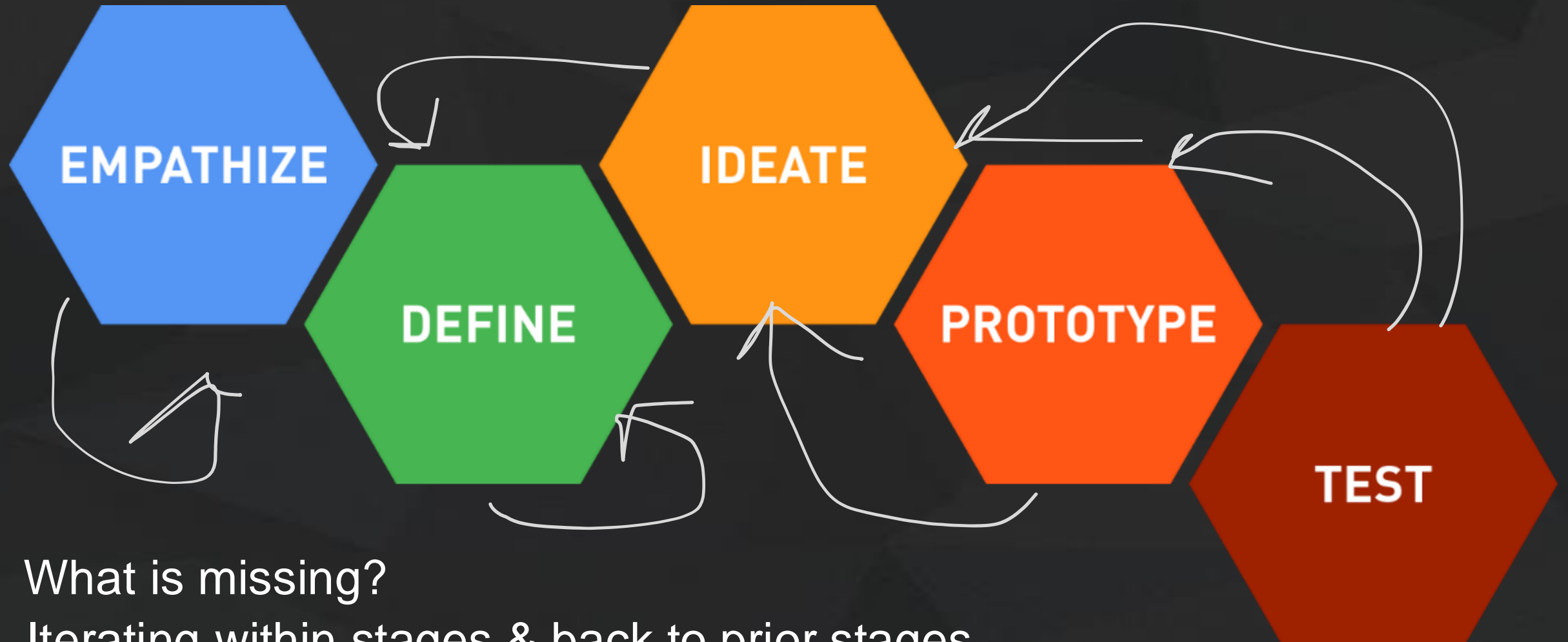
TECHNOLOGY



Approach to Application Design & Prototyping



Design Thinking Process



What is missing?

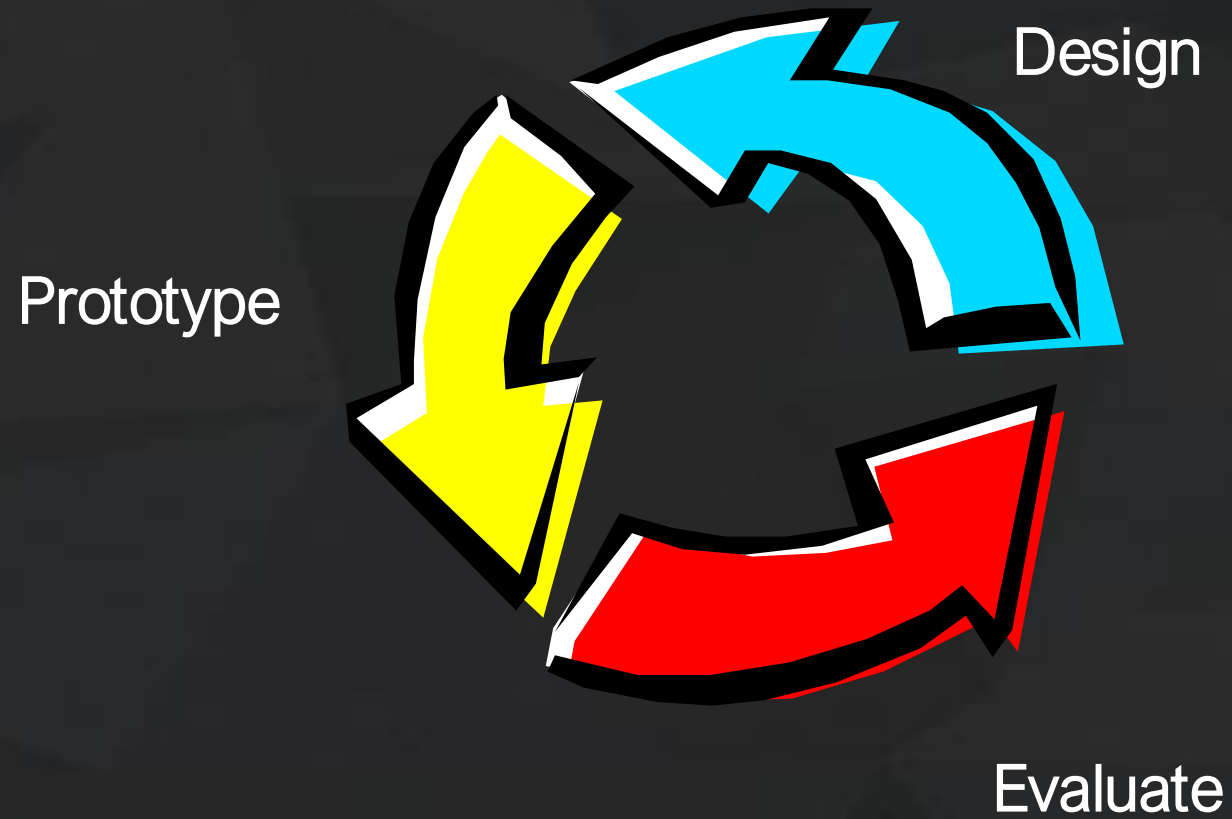
Iterating within stages & back to prior stages

How to Design and Build Good UIs

- Iterative development process
- Usability goals
- User-centered design
- Design discovery
- Rapid prototyping
- Evaluation
- *Programming*

Iteration

At every stage!



Usability^(?)

According to the ISO:

The *effectiveness, efficiency, and satisfaction* with which specified users achieve specified *goals* in particular *environments*.

This doesn't mean you have to create a “dry” design

Usability/User Experience Goals

- Set goals early & later use to measure progress
- Goals often have tradeoffs, so prioritize
- Example goals(?)
 - Learnable
 - faster the 2nd time & so on
 - Memorable
 - from session to session
 - Flexible
 - multiple ways to do tasks
 - Efficient
 - perform tasks quickly
 - Robust
 - minimal error rates
 - good feedback so user can recover
 - Discoverable
 - learn new features over time
 - Pleasing
 - high user satisfaction
 - Fun



User-centered Design

“Know thy User”

- Cognitive abilities
 - perception
 - physical manipulation
 - memory
- Organizational / educational job abilities
- Keep users involved throughout
 - developers working with target customers
 - think of the world in users’ terms

Accessible Design

- Different abilities
 - vision, hearing, cognitive, mobility
 - e.g., blind users with screen readers
- Moral and ethical purpose
 - inclusive design benefits everyone
 - e.g., sidewalk curb cuts
- Legal guidance
 - Americans with Disabilities Act (ADA)



<https://www.appspringtech.com/wp-content/uploads/2020/09/descarga.jpg>

User-centered Design: Needfinding

- Observe existing practices for inspiration
- Make sure key questions answered
- Ethical questions in design w/ underserved communities

Peekaboo!



Unpacking the Needfinding

The whiteboard is organized into four main quadrants, each containing numerous colorful sticky notes (yellow, orange, pink, light blue, and teal) with handwritten text. The quadrants are labeled as follows:

- SAY** (Top Left): A grid of approximately 30 sticky notes.
- THINK** (Top Right): A grid of approximately 20 sticky notes.
- FEEL** (Bottom Left): A grid of approximately 30 sticky notes.
- DO** (Bottom Right): A grid of approximately 20 sticky notes.

Additional sections on the whiteboard include:

- Tensions, Contradictions, Surprises** (Right side): A vertical column of sticky notes.
- Rechords** (Bottom center): A label at the bottom of the board.

A second whiteboard is visible on the right side of the image. It features a grid structure with the following labels:

- SAY** (Top left corner)
- DO** (Middle left corner)
- TENSIONS, CONTRADICTIONS, SURPRISES** (Bottom right corner)

The grid contains some faint lines and a few handwritten notes, but it is mostly empty compared to the first whiteboard.



budder

Develop Point of Views (Person + Insight + Challenge) Brainstorm on How Might We Solve

WE WERE AMAZED TO REALIZE . . .
(what did you learn that's new?)

THAT THANKS TO THE BOAT OWNER'S MENTORSHIP, TRUST, AND DESIRE OF
THE FISHING LIFESTYLE AND CONNECTION TO NATURE, HE HAD TURNED HIS LIFE
AROUND FROM DRUG ADDICT W/OUT A JOB TO SPENDING WITH SKILL & COMPANY

IT WOULD BE GAME-CHANGING TO . . .
(frame up an inspired challenge for yourself
don't dictate the solution.)

ALL OF US COULD TAKE A RISK TO SEE A SPARK IN OTHERS AND
NURTURE IT INTO A PURPOSEFUL TRANSFORMATION.

HMW bring
routine (and
discipline)
me less?

Experience Prototype to Test Assumptions

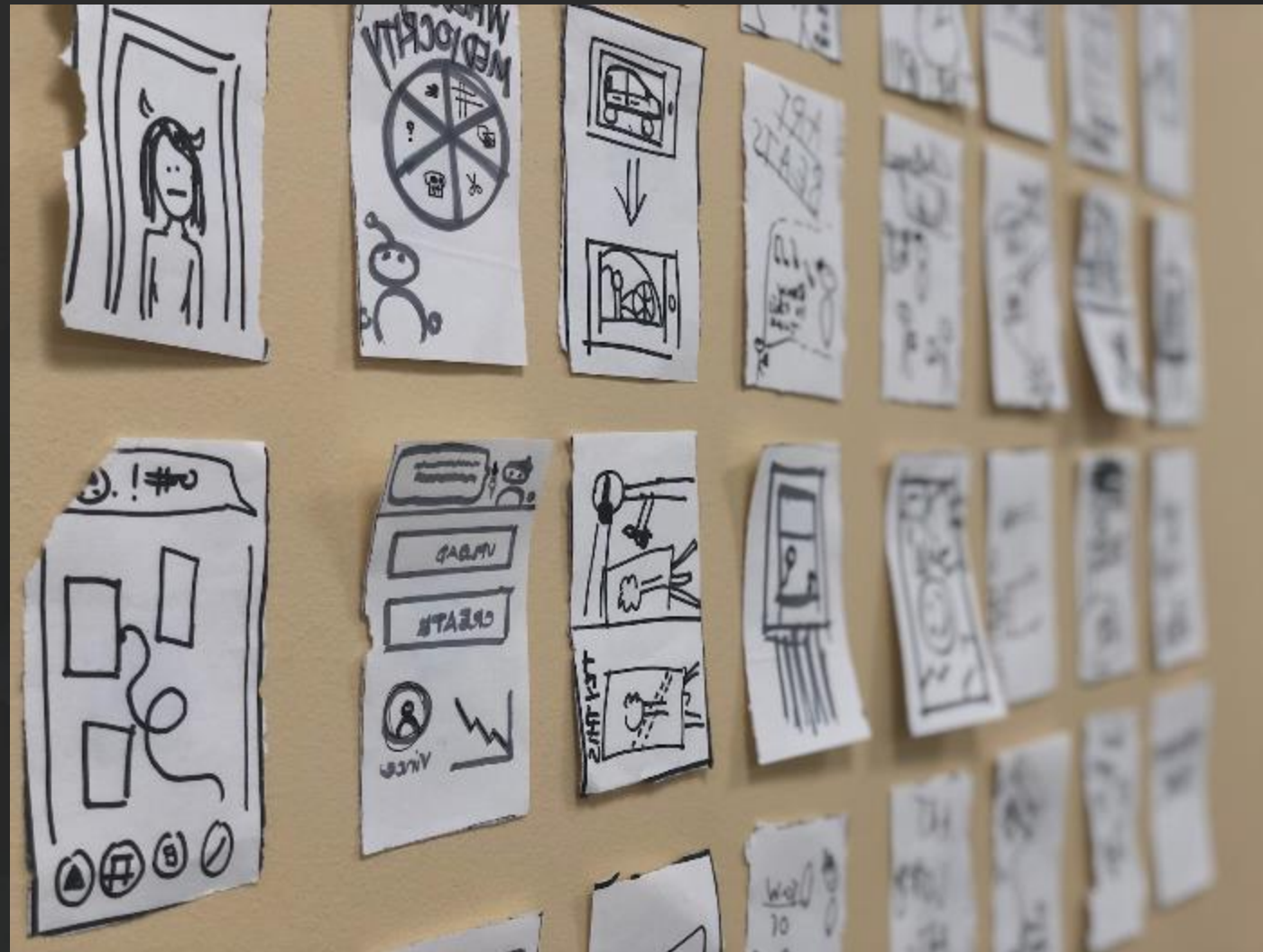


Struggle Bus

Experience Prototype to Test Assumptions

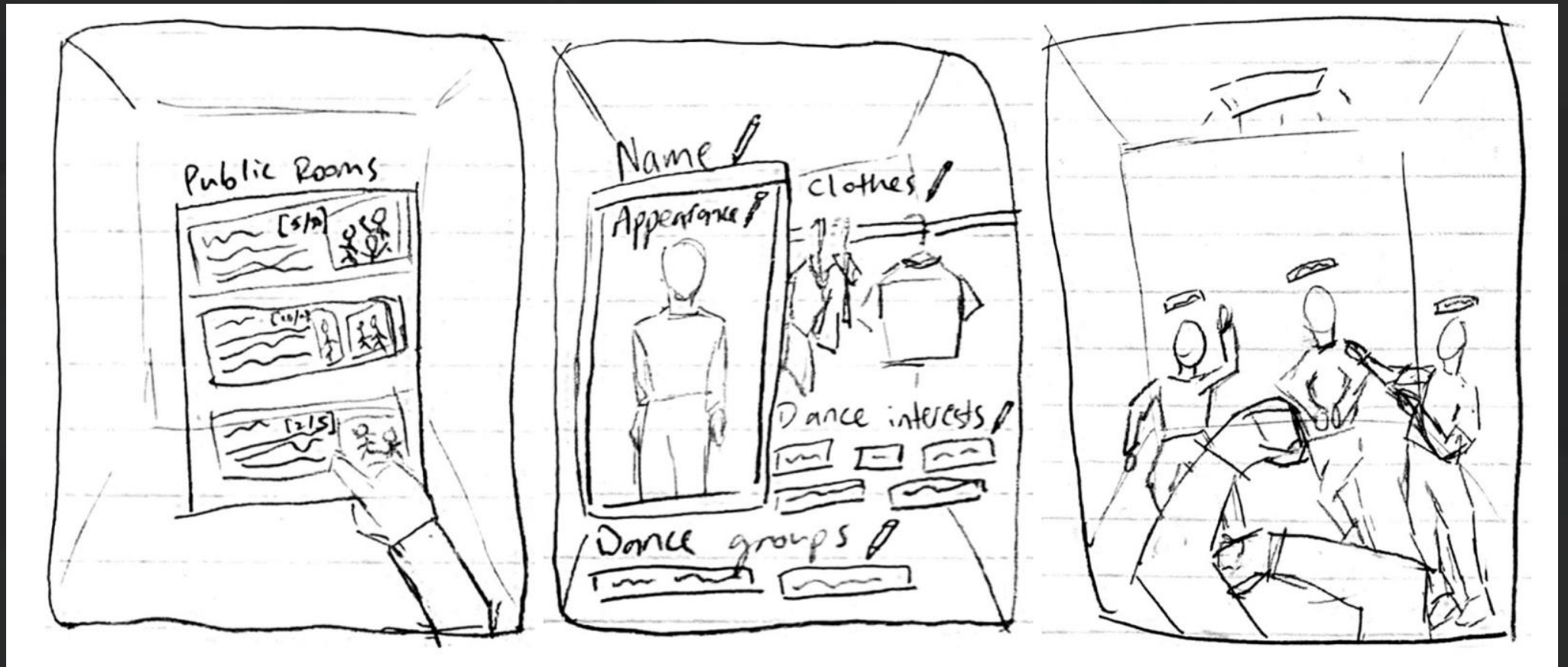


Sketching & Storyboarding



artbot

Sketching & Storyboarding



house

Concept Videos

- Illustrate context of use rather than specific UI
- Quick & inexpensive
- Forces designers to consider details of how users will react to the design

Concept Videos: Planning Storyboards



TURNING POINT : INTRO RAMBL



Rambl

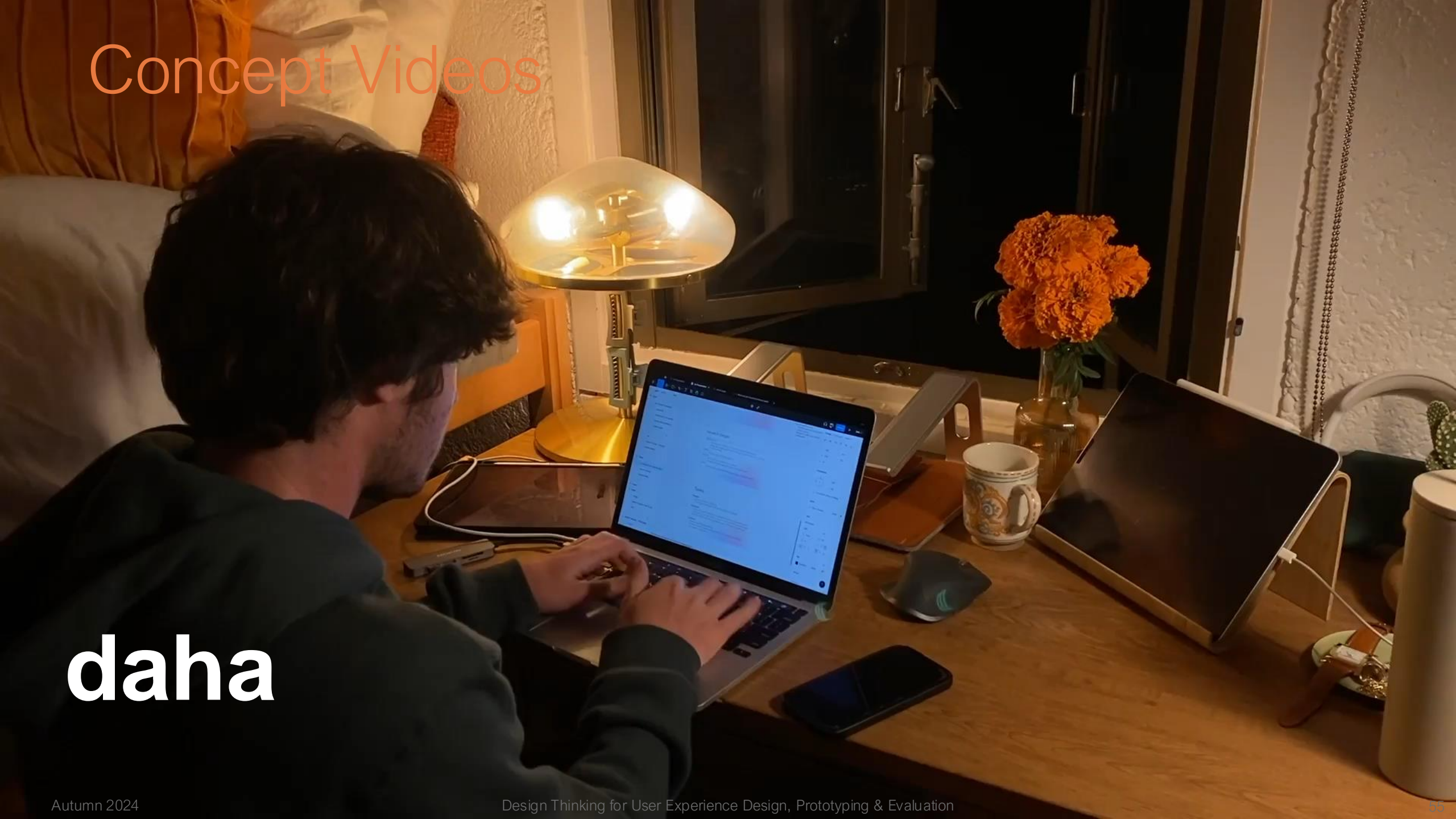


Concept Videos: Planning Storyboards



inspyre

Concept Videos

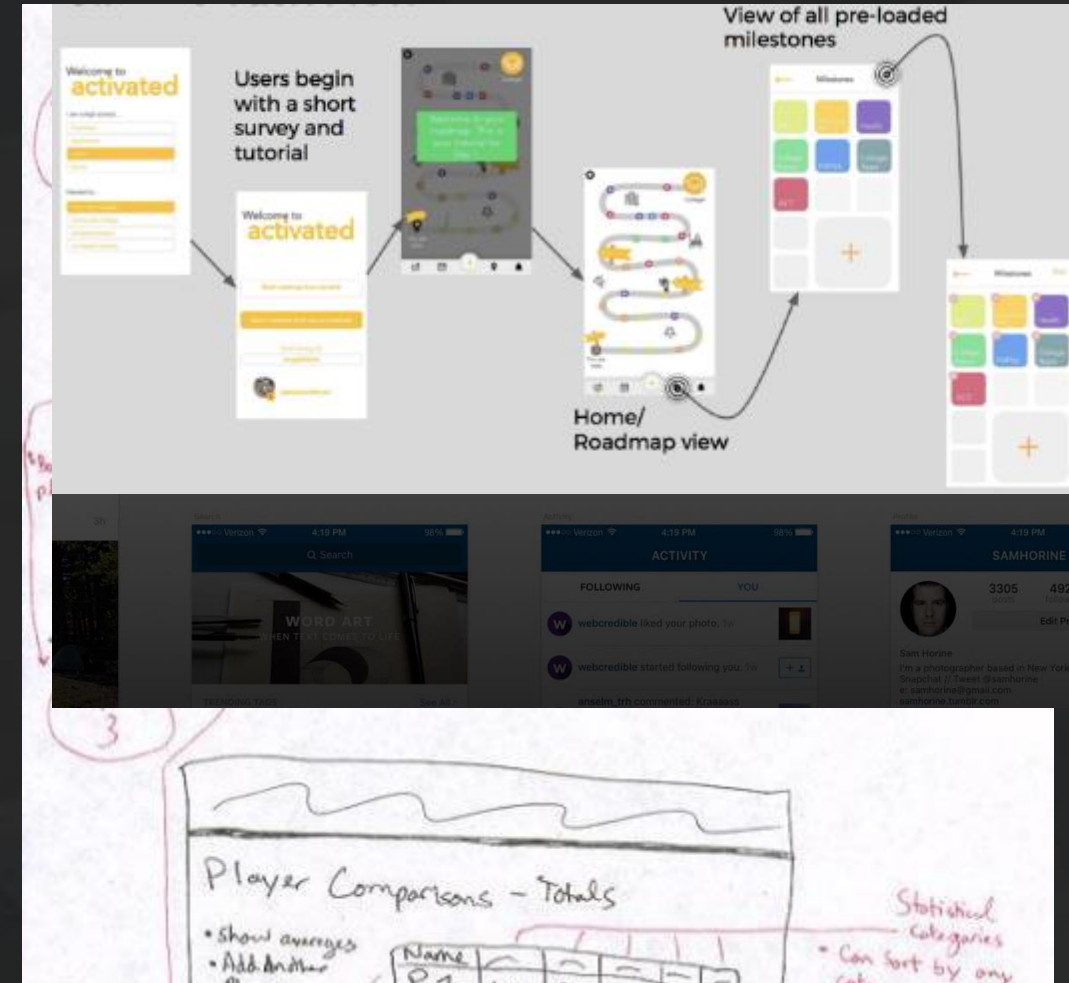


daha

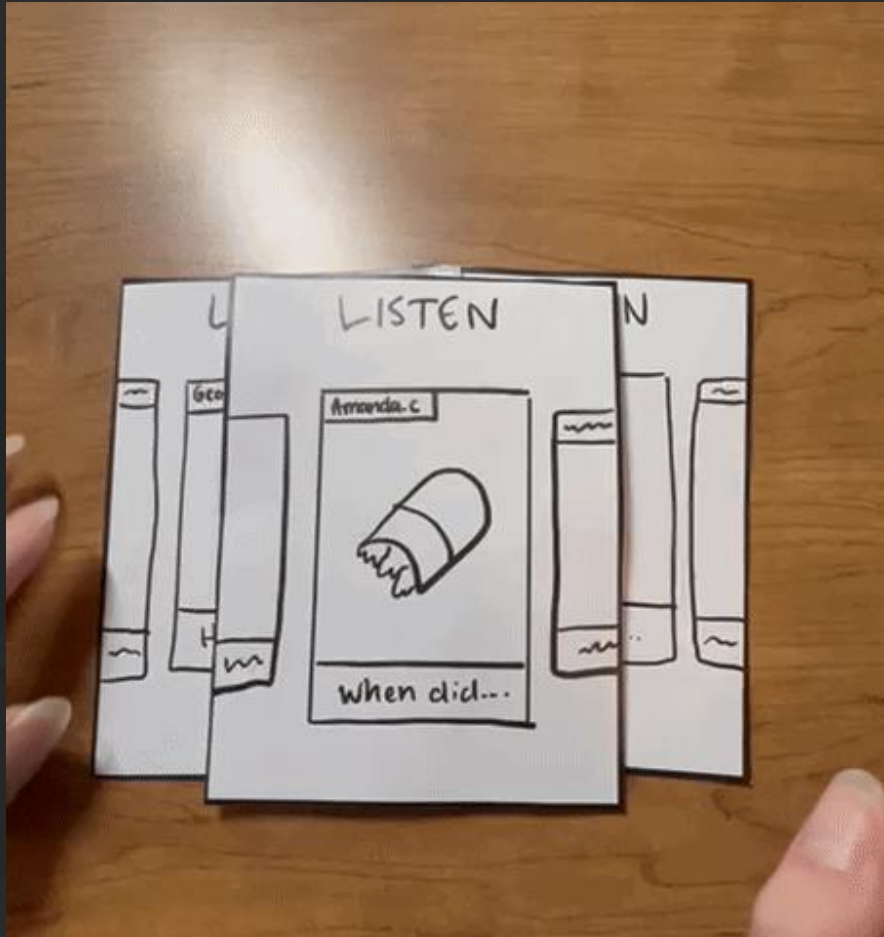
Rapid Prototyping

Fantasy Basketball

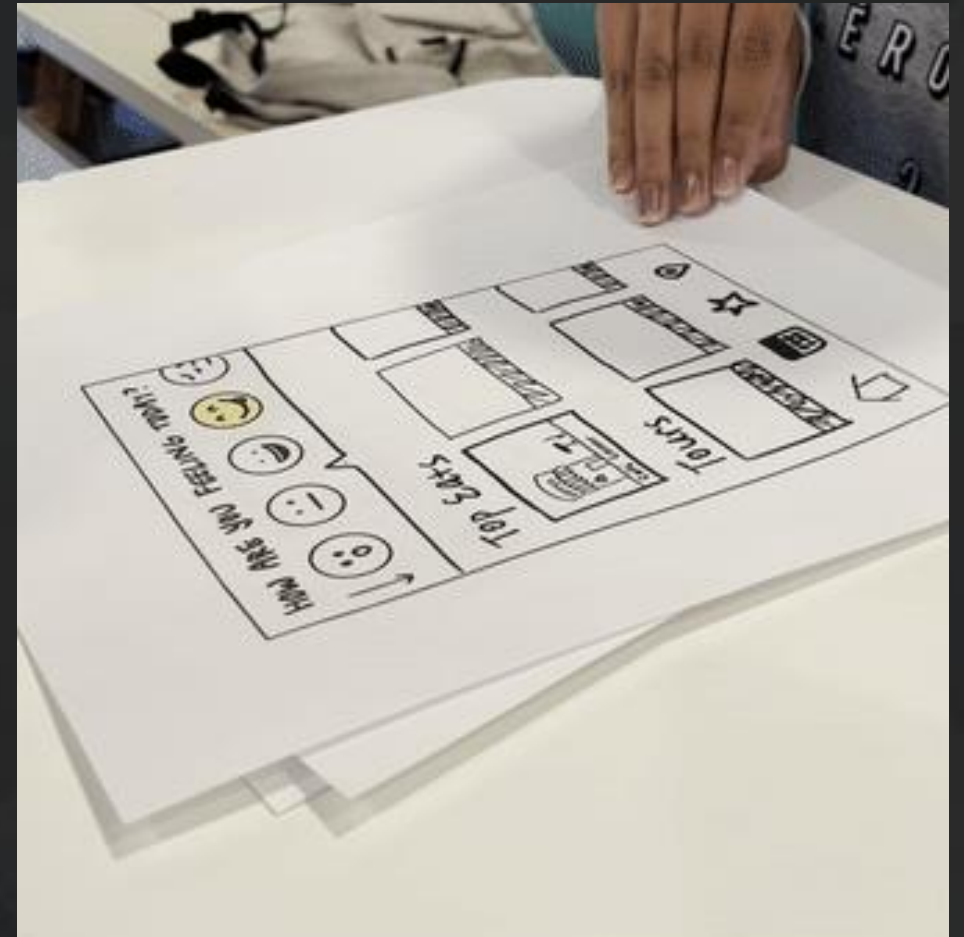
- Build a mock-up of design so you can test it
- Low fidelity techniques
 - paper sketches
 - cut, copy, paste
- Interactive prototyping tools
 - HTML, Balsamiq, Axure, proto.io, Sketch+Marvel, Figma, Modao, etc.
- UI builders
 - Expression Blend + Visual Studio, Xcode Interface Builder, etc.



Low-fi Prototyping & Testing



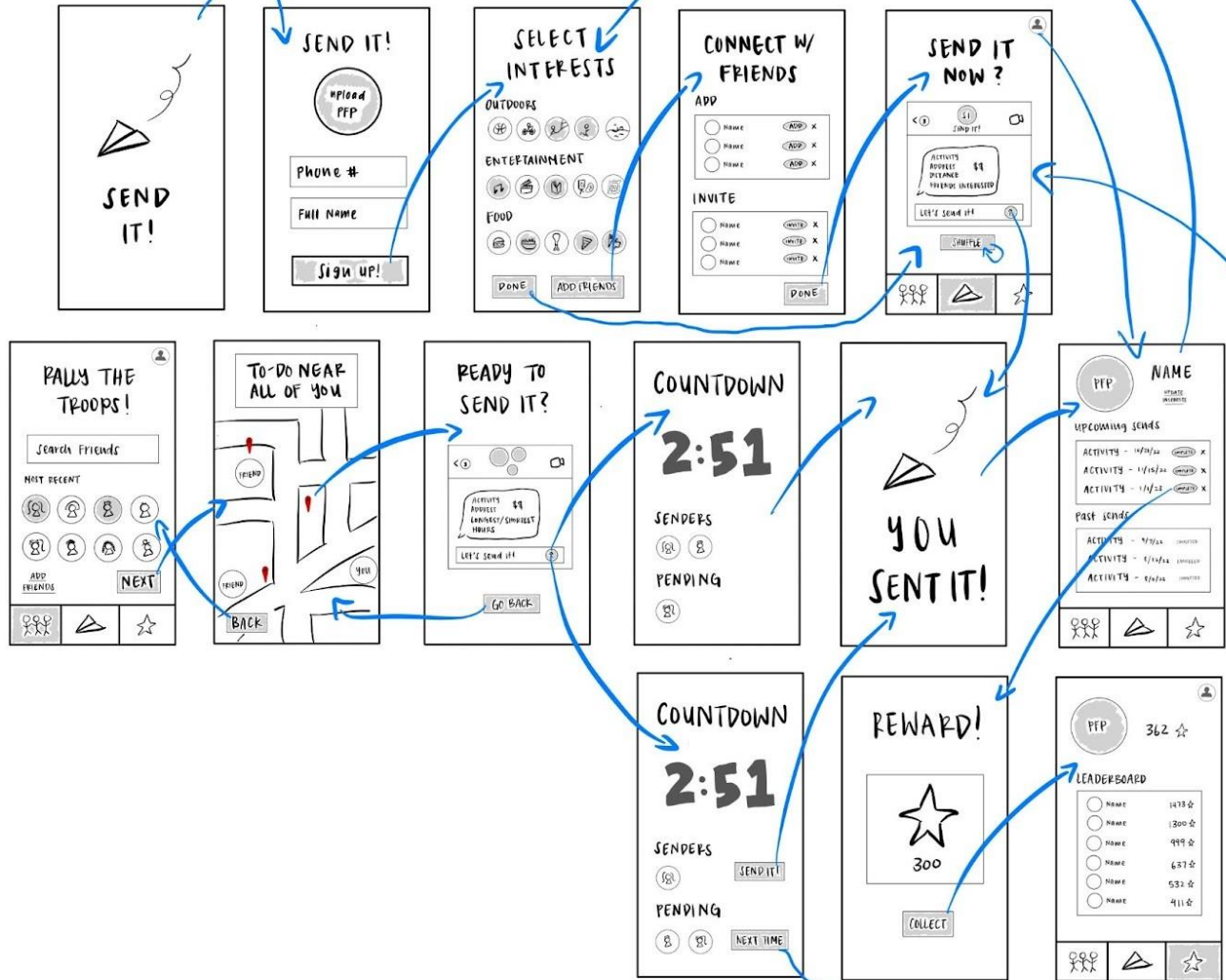
StoreaTime



UnCover

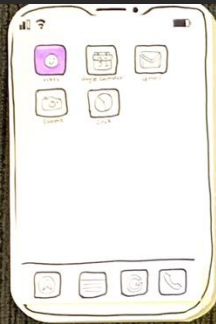
Low-fi Prototyping & Testing

ENTIRE SYSTEM



Send It

Low-fi Prototyping & Testing



How have you been feeling this morning?

STRESSED
 CONTENT
 SAD

How free are you today?

0 | 1 | 2 | 3 | 4 | 5

Not free | Kinda free | Super free!

Check In

Thank you for checking in

Team is STRESSED

Investigate team mood >>

70% of your team says they have free time

Find people with free time >>

Check in your mood >> Team Thoughts >>

Team is CONTENT

Investigate team mood >>

70% of your team says they have free time

Find people with free time >>

Check in your mood >> Team Thoughts >>

Team is EXCITED

Investigate team mood >>

70% of your team says they have free time

Find people with free time >>

Check in your mood >> Team Thoughts >>

PEOPLE WITH FREE TIME

SEARCH BY COUNTRY

Top 3

Carrie
 Andre
 Sally

Entire Team

Nora
 Liam
 Joan

Carrie
Social Level: 4

About Me:

- Rabbit Man
- Birks Lover

Interests:

- Hiking in the Rockies
- skiing

Andre
Social Level: 3

About Me:

- Just got engaged
- Music Lover

Interests:

- Hip hop

SALLY
Social Level: 4

About Me:

- Video game lover
- Loves to cook

Interests:

- Minecraft, pasta, hiking

Maria
Social Level: 2

About Me:

- Taylor Swift fan

Interests:

- Baking

Timone
Social Level: 2

About Me:

- Karate Blue Belt holder
- Classic Rock Lover

Interests:

- Zoology
- Camping
- Origami

Juan
Social Level: 1

About Me:

- amateur DJ

Interests:

- Clubbing

Carrie
Project Manager
Status: Mostly Free

About Me:

- Rabbit Man
- Birks Lover

Interests:

- sky driving
- Crafting

Andre
Senior Software Engineer
Status: Kinda free

About Me:

- Just got engaged
- Music Lover

Interests:

- Hip Hop

Sally
Data Scientist
Status: Mostly Free

About Me:

- Video game lover
- Loves to cook

Interests:

- Minecraft, pasta, hiking

Maria
Team Lead
Status: Barely free

About Me:

- Taylor Swift fan

Interests:

- Cooking

Timone
Project Manager
Status: Barely free

About Me:

- Karate Blue Belt holder
- Classic Rock lover

Interests:

- Zoology
- Camping
- Origami

Juan
Software Engineer
Status: Not Free

About Me:

- Amateur DJ

Interests:

- Clubbing

←THOUGHTS

I wish the team planned social events and activities that everyone would enjoy. 7♥

Does anyone else feel like our meetings have been unproductive recently? 4♥

The team has been pretty quiet lately - can we plan a team lunch? 8♥

Welcome Devin to the team! We are excited to have him join us. 10♥

+

Add a Thought

POST

I'm so glad there's an anonymous way to voice my opinions

←THOUGHTS

I wish the team planned social events and activities that everyone would enjoy. 7♥

Does anyone else feel like our meetings have been unproductive recently? 4♥

The team has been pretty quiet lately - can we plan a team lunch? 8♥

+

5♥

4♥

1♥

11♥

8♥

Messaging feature is not available

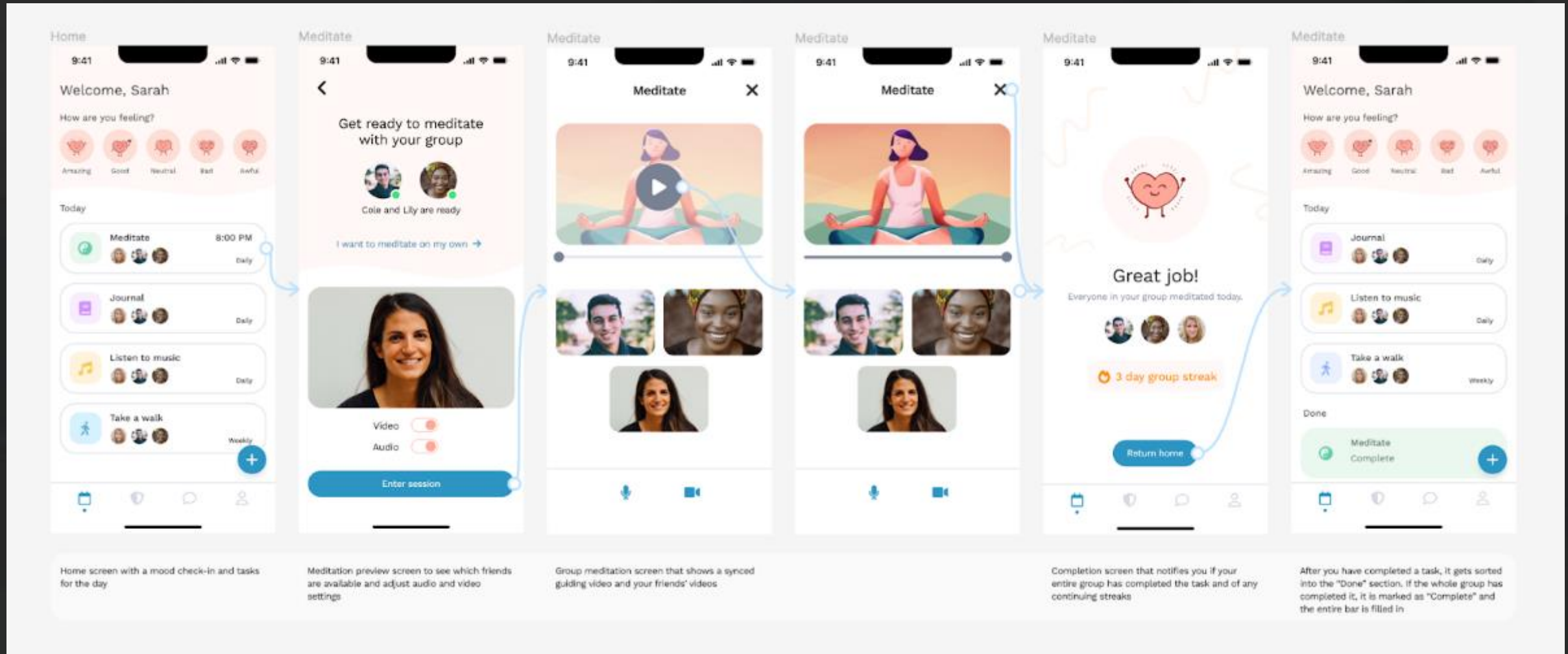
Error: Please answer both questions.

Error: Please enter a valid coworker.

Vibes

Interactive Prototypes

Medium Fidelity

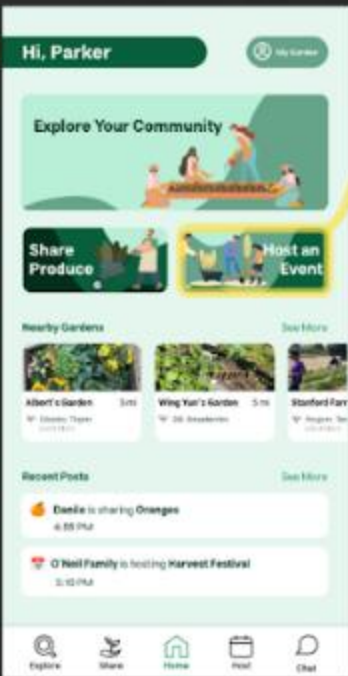


Kokoro

Interactive Prototypes

Medium Fidelity

Medium Task: Schedule and edit an event at your garden



Hosting an event can be done by tapping the call to action or selecting the Host nav tab.



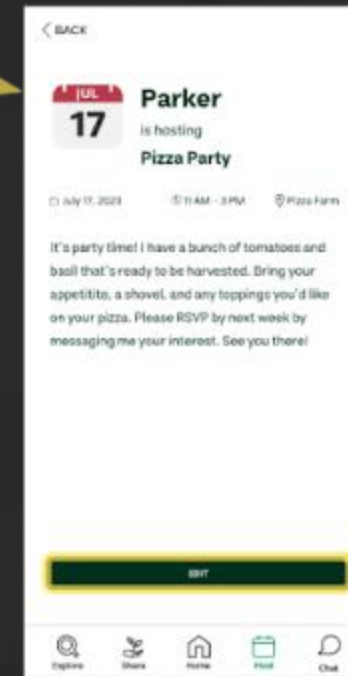
Hosting an event is done by filling out a form which will become visible to neighboring gardeners.



User enters event name, description, location, date, and time.



Popup modal indicates success.



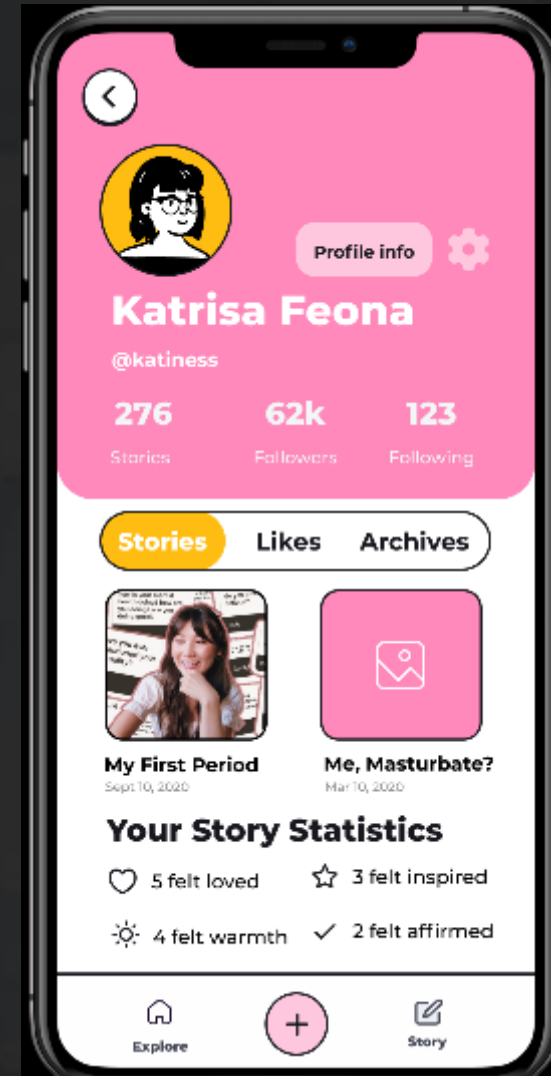
The event information is now public and will appear on the user's garden page and in search results.



The user can edit their event details and resubmit at any time.

Interactive Prototypes

Medium Fidelity

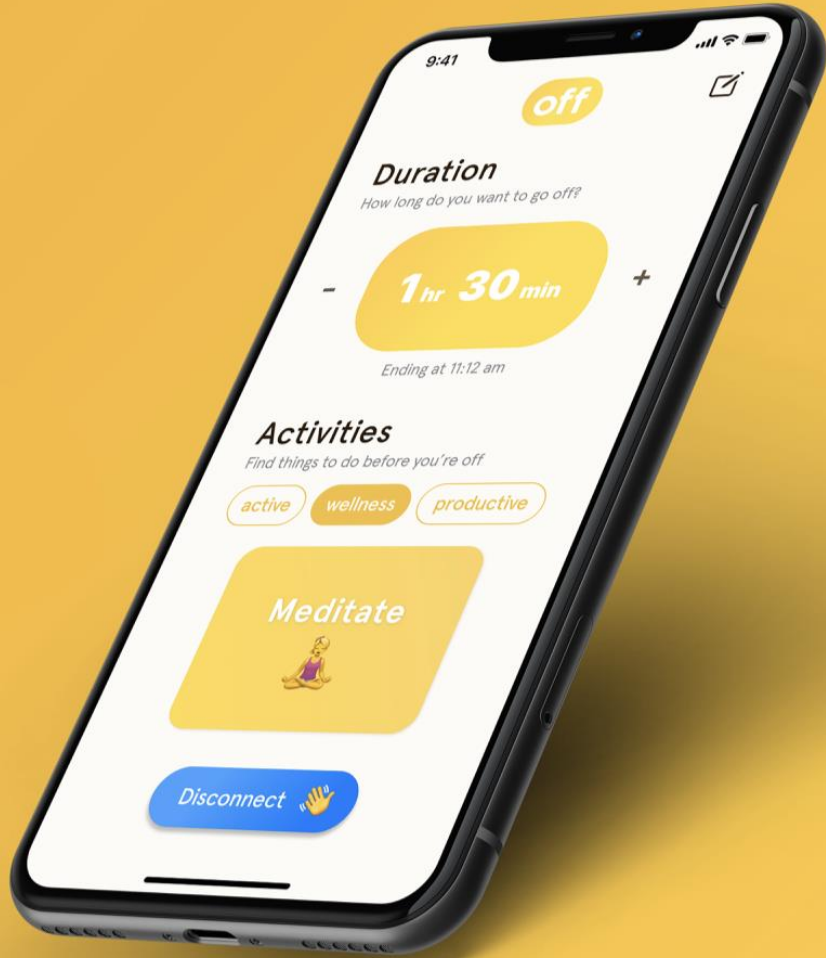


Sex Academy

Interactive Prototypes

Hi-Fidelity

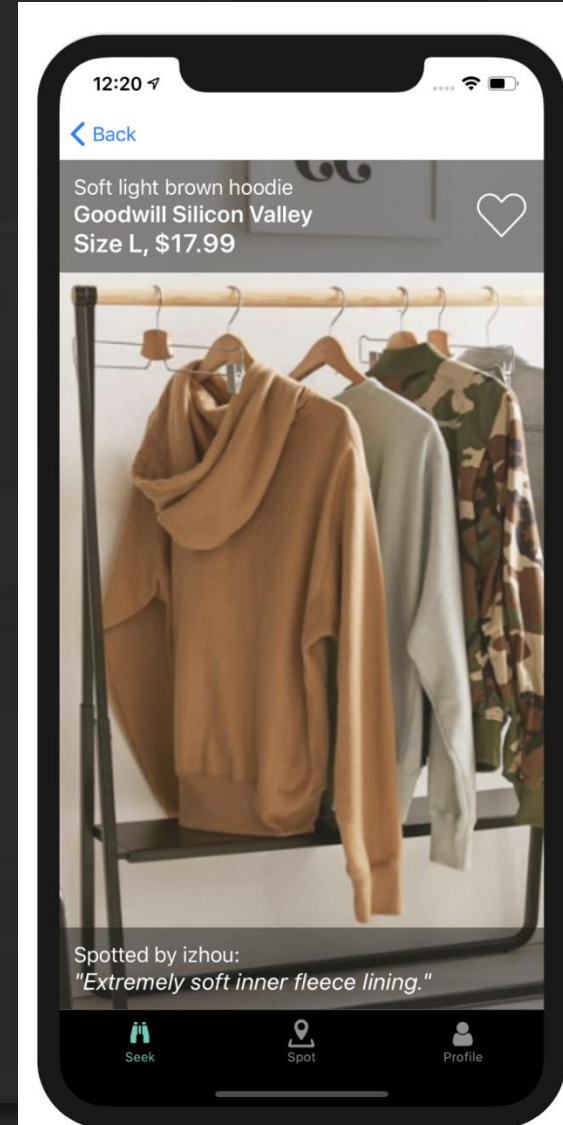
off



butter



thread



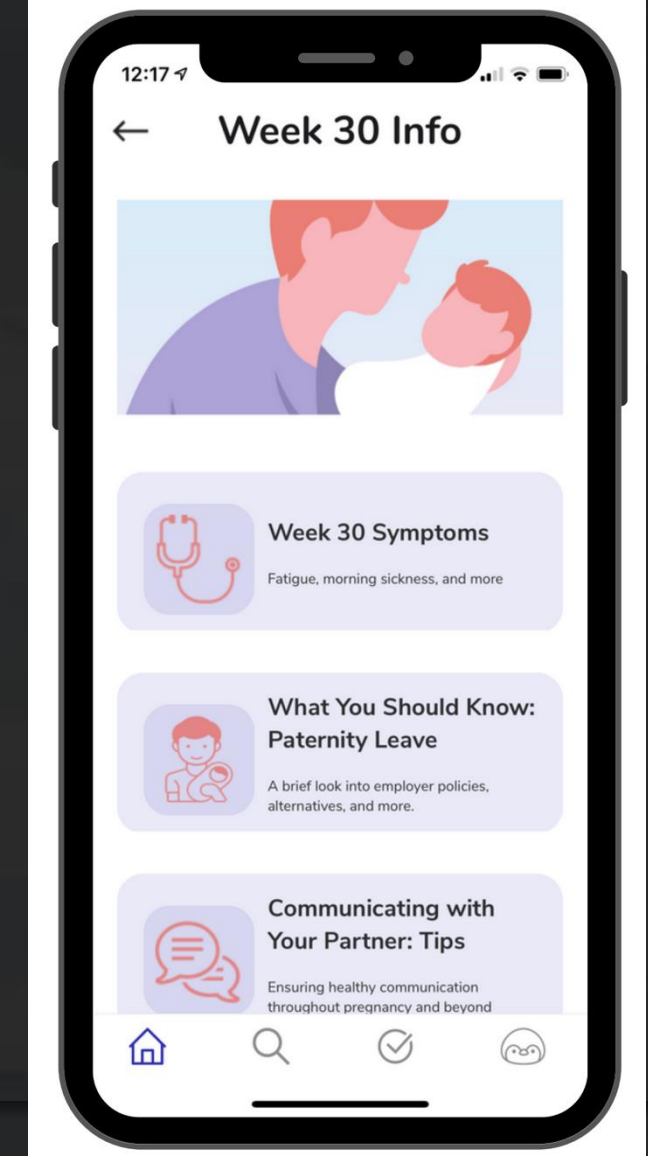
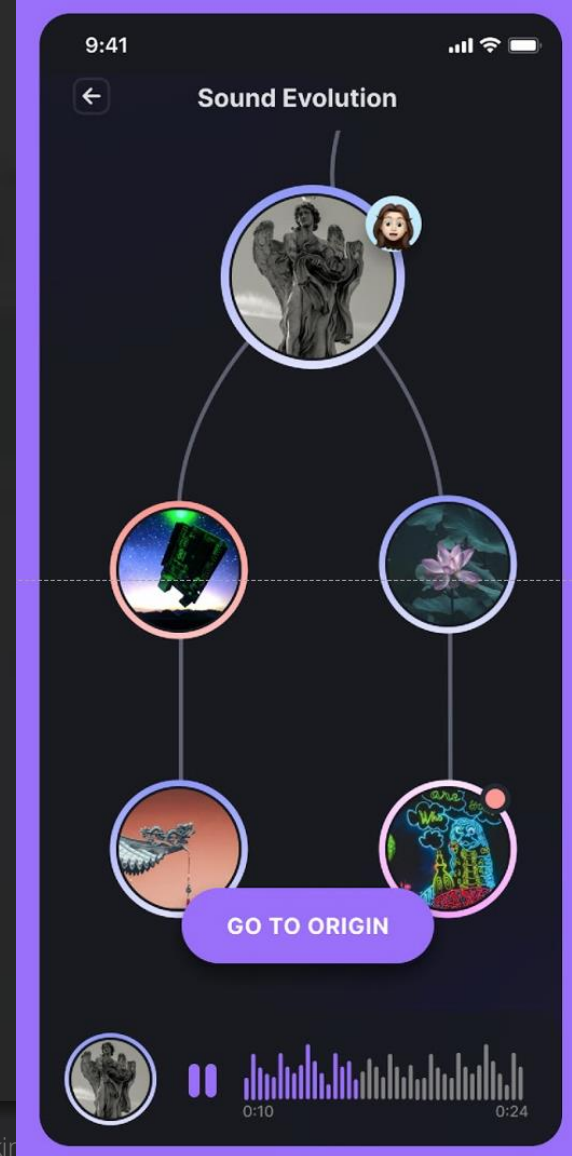
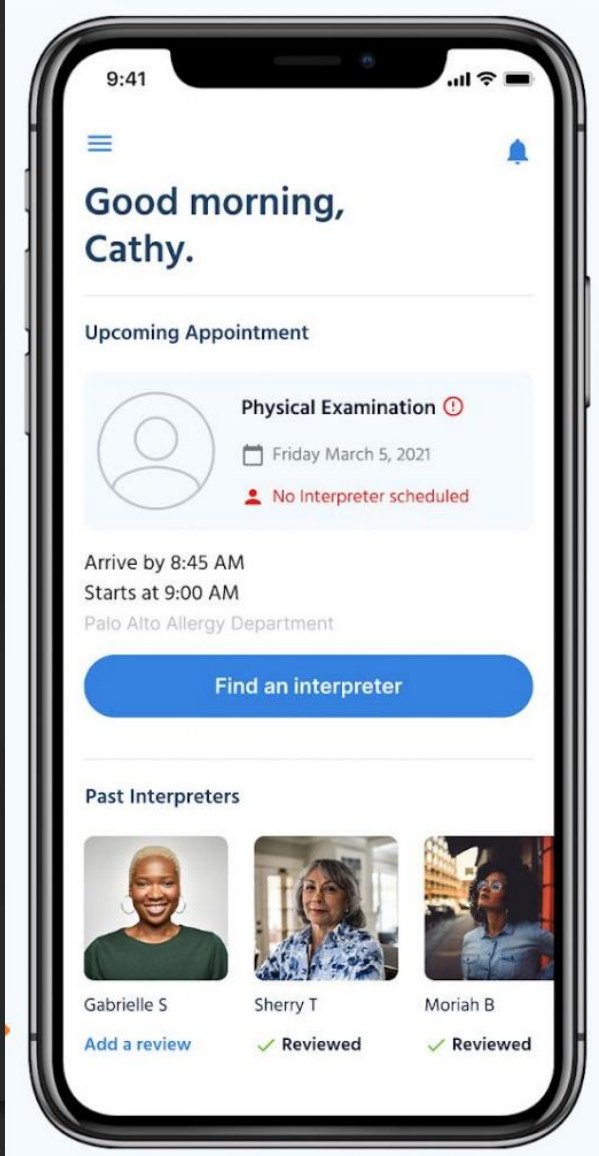
Interactive Prototypes

Hi-Fidelity

BookEd

Sprout

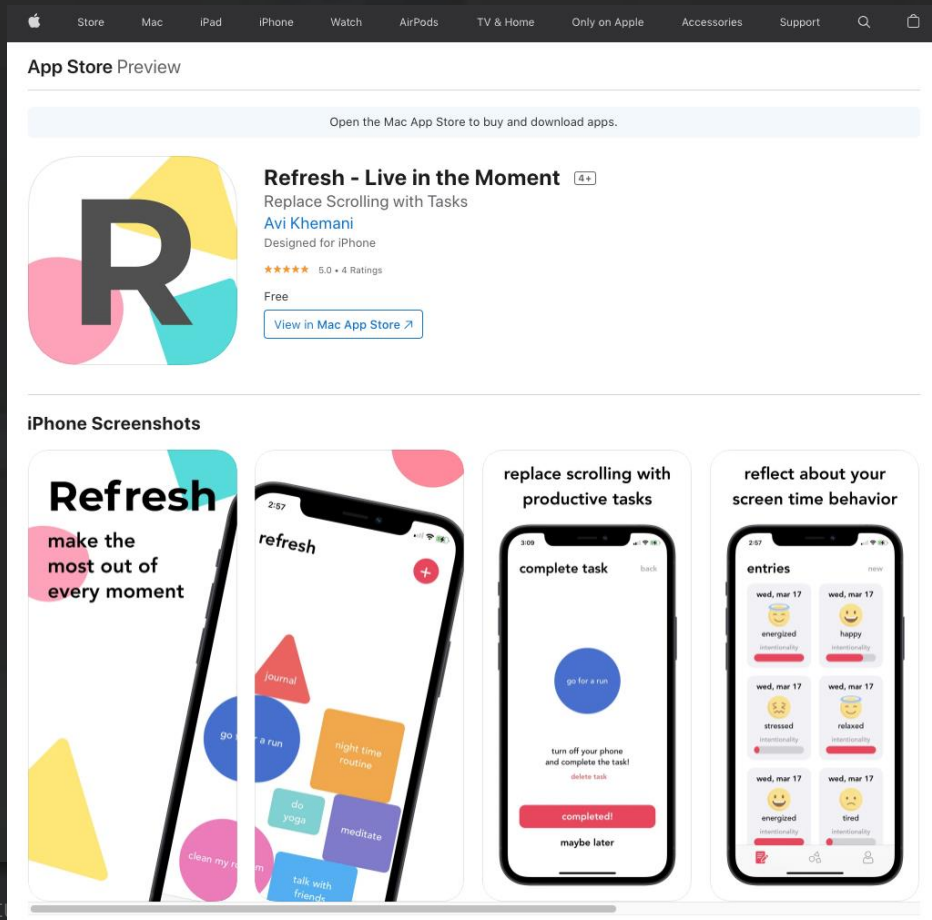
Pebble



Interactive Prototypes

Hi-Fidelity

- Does this mean at the quality to go in an app store?
 - for a few yes, but for most no (this is not a requirement & many will push to this in CS194H)



- You **will** be building a real app (with code)
 - **not** a click-thru prototype (e.g., using Figma or InVision)
- It should support most of your functionality
- But it might be missing
 - polish
 - back-end implementation
 - maybe data stored locally, social networks incomplete, etc.
- CS (intended) majors should have pre-reqs (106B/X, 142/193P/193A or experience building apps) If not...

CS147L – Cross-Platform Mobile Development

- Create a mobile app on both iOS & Android using the React Native framework in just 10 weeks
- Tuesday/Thursday 1:30 – 2:50 PM, 3 Units
- You can dual use CS147L/CS147 projects!
- Course web site: <http://hci.st/cs147L>
- Preference given to graduating seniors & CS147 students
- Apply here by Thursday, 9/28 at 11:59 PM

<https://hci.st/cs147L-24au-A0>

Evaluation

- Test with real customers (participants)
 - w/ interactive prototype
 - low-fi with paper “computer”
- Low-cost techniques
 - expert evaluation (Heuristic Evaluation)
 - online testing



Wanderlust

Learning Goal of CS 147

Learn to design, prototype, & evaluate UIs

- Tasks, activities & practices of prospective users
- Cognitive/perceptual constraints affecting design
- Techniques for brainstorming, ideation & prototyping
- Methods for evaluating UI designs
- Importance of iterative design for usability
- Technology used to prototype UIs

- *How to work together as a team*
- *Communicating results to a group*

Course Format

- Interactive lectures → you speak!
- Each week
 - 2 lectures on techniques & background
 - 60-80 minutes of lecture
 - 20-30 minutes team meeting each lecture → you need to be here to work with your team
 - 10-20 minutes for in class exercises
 - 1 studio with hands-on activity or team presentation
- Quarter-long project
- Readings, Videos, Podcasts
- Course material will be online
 - slides, exercises, readings, schedule
- Have fun & participate!

Projects

- Each team will propose a UI-oriented project
 - fixing something broken or a completely new idea
 - based on team *needfinding*
- Theme
 - each Thursday/Friday studio has a theme
 - all projects mobile/wearable/off desktop/AI
- Groups
 - 3-4 students to a group (4 preferred)
 - work with students w/ *different skills*
 - CS students should have had 142/193p/193a or equivalent (non-majors need not)
 - If not, take CS147L, learn ReactNative, dual use project for CS147L/147
 - groups meet in class & studio weekly
- Cumulative
 - apply several HCI methods to one interface
- If you let your team down, we will lower your grade

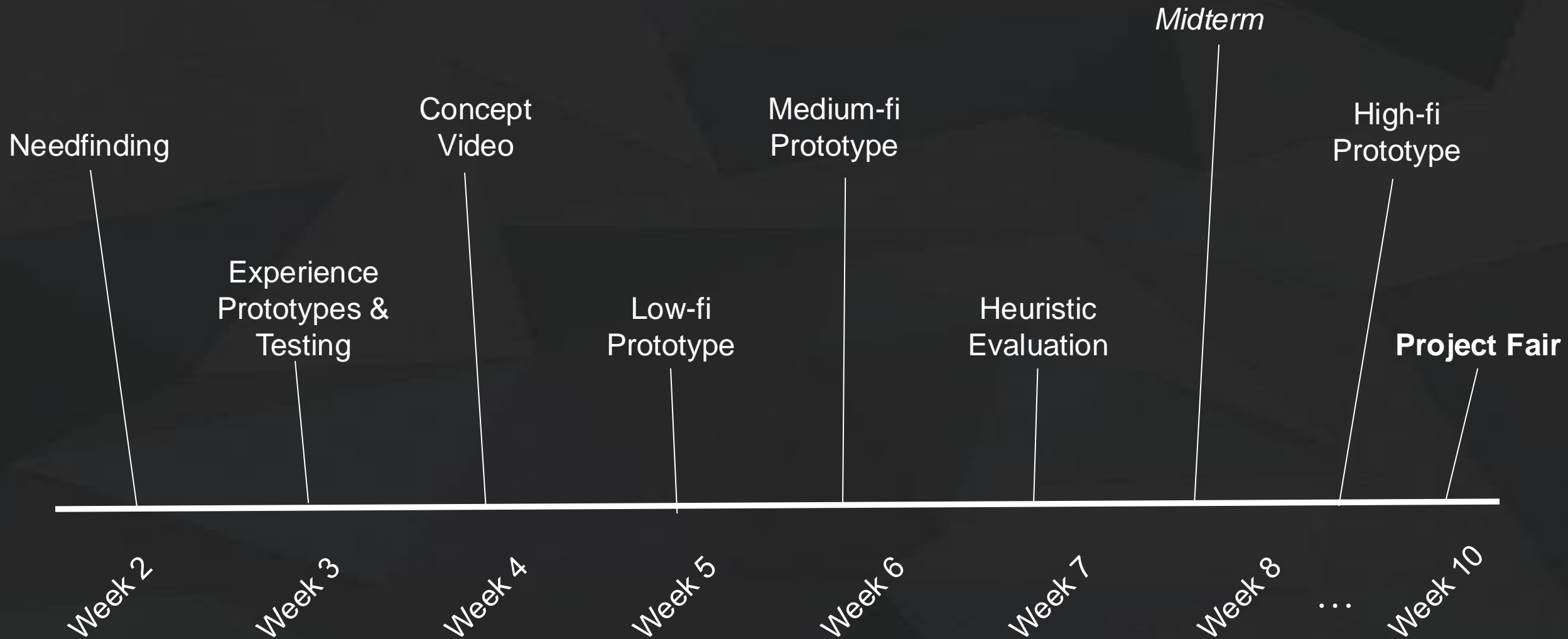


Design Studios

Teams attend small weekly studio (9-16 students)
-critique/feedback in more intimate environment



Project Process Timeline



CS 147 AU24 COURSE TIMELINE



ASSIGNMENTS OVERVIEW

See corresponding colors on the calendar to see when these projects will occur during the quarter.

Assignment 1

Needfinding

In this assignment you will plan, develop, and execute the first needfinding round for your quarter-long team project. You will present your interview plan (methodology), data gathered from your initial interviews, and the key insights and inferences you have made. You will capture this analysis in an empathy map that you will share in your studio presentation.

Assignment 2

POVs and Experience Prototypes

You will revisit the findings from A1, interview more participants based on a deeper focus, and formulate points of view for your potential users. From there, you will craft several "How Might We" statements to frame the problem area and intended design goal. Based on the best HMW statements, you will brainstorm several solutions. You will then create and test 3 "experience prototypes" to learn more about these ideas.

Assignment 3

Website

The goal of this assignment is to learn how to present your work in a professional, engaging, and appealing manner. Previous students have used their websites to talk about their project when on the job hunt! Your website will be hosted on Stanford AFS.

Assignment 4

Concept Video

The goal of this assignment is to continue to learn how to brainstorm novel design ideas and turn these ideas into a concept video. You will start by conducting market research to find other apps in your space (ensure you're thinking up a novel product). You will then shoot a video that will help you to learn how to both

Assignment 5

Low-fi Prototype and Usability Test

Learn how to use low-fi prototyping in the early stages of UI design. You will first sketch many different design realizations that will help you to learn how to both

Assignment 6

Interactive Medium-fi Prototype

Learn how to build medium-fidelity, interactive prototypes of UI ideas using an interactive UI design tool. Understand the tradeoffs compared to low-fi prototyping or even creating a prototype through coding. You will revise your UI ideas based on the insights from your low-fi prototype user testing and feedback from your studio peers and CA. Then, you will use interactive tools to

Books

We will give you web links to all necessary readings/videos

Recommended textbook (if you need one)

Designing the User Interface: Strategies for Effective Human-Computer Interaction by Shneiderman et. al, 6th edition (2016)

Assignments

- Individual
 - 1 presentation each
 - 1-2 written (handed in online)
 - class & studio participation (graded)
 - in class exit tickets to show you came to lecture & are paying attention
- Group
 - 10 assignments
 - 4-5 presentations with 3-4 write-ups + video + poster
 - all group work handed in online
 - team web site & online submission site

Grading

- A combination of
 - individual assignments & presentation (10%)
 - class/studio participation (10%)
 - midterm (20%)
 - group project (60%)
 - presentations/poster (group component)
 - project write-ups
- No final
 - **must be present at project fair on Friday 12/6 (6:00-9:30 PM)**

Tidbits

- Late Policy
 - no lates on group assignments
 - individual assignments lose one letter grade/day
- Course web site
 - <http://hci.stanford.edu/courses/cs147/2024/au/> or cs147.stanford.edu
- Studio time preferences & team signups (you do **not** need a team in advance!)
 - form will be open on Tue and due Wed at 5 PM, but we want to gauge if we have the right times now
 - <https://bit.ly/cs147-au24-sections> (fill this out now! non-binding)



Section Preferences

Tidbits

- Team Mixer
 - Tue in Gates 403 from 6-7:30 PM. Meet people. Eat pizza. Find a team?
 - Fill out this form now so we know how much pizza to order
<http://bit.ly/cs147-au24-ice>
- OAE Letters
 - Send to landay@stanford.edu & sapkota@Stanford.edu within first 2 weeks of class
- Attendance
 - you are expected to be in lecture & studio in person
 - If you have a small conflict (less than 30 min), we will consider how to resolve it
 - fill out <https://bit.ly/cs147-24au-conflicts> for us to review & approve conflicts
 - studio misses
 - we drop 1st miss w/ **pre-approved** excuse, 2nd pre-approved miss w/ makeup assignment, after that it comes out of your participation grade
 - if you get sick, we will figure it out. Contact me & our head CA (Shardul)



Icebreaker

Summary

- UX design is an important part of most software
- Getting the interface right is hard, but...
- Solution is *Iterative Design* including repeated cycles of
 - Design
 - Prototyping
 - Evaluation

Next Time

- Design Discovery
- Read
 - Holtzblatt & Beyer, Ch. 3 from [Contextual Design](#)
 - d.school's [Empathy Fieldguide](#)
 - optional: Holtzblatt & Beyer, Contextual Design, In *The Encyclopedia of Human Computer Interaction*, 2nd Ed.
 - If any readings are password protected, it should be “hcid”
- Watch
 - [ABC News Nightline IDEO Deep Dive, July 1999](#) (22 minutes)
 - optional: [ABC News, IDEO Design Thinking](#), January 2013 (13 minutes)